CDP-C450Z/CE505

SERVICE MANUAL

US Model
CDP-C450Z/CE505
Canadian Model
AEP Model
E Model
Australian Model
Chinese Model
CDP-CE505

Photo : CDP-CE505

Model Name Using Similar Mechanism	CDP-C250Z/C350Z/CE305/CE405
CD Mechanism Type	CDM27A2-5BD20
Base Unit Type	BU-5BD20
Optical Pick-up Type	KSS-213B/K-N

SPECIFICATIONS

Compact Disc Player

Laser	Semiconductor laser (λ = 780 nm) Emission duration: continuous
Laser output	Max 44.6 µW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.
Frequency response	2 Hz to 20 kHz ± 0.5 dB
Signal-to-noise ratio	More than 107 dB
Dynamic range	More the 98 dB
Harmonic distortion	Less than 0.0035%
Channel separation	More than 100 dB

Output

	Jack type	Maximum output level	Load impedance
LINE OUT	Phono jacks	2V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18dBm	Wave length : 660nm
PHONES	Stereo phone jack	10mW	32 ohms

General

Power requirements

Where purchased	Power requirements
US, Canadian	120V AC, 60 Hz
AEP, German	220-230V AC, 50/60 Hz
Australian	240V AC, 50/60 Hz
E	110-120V, 220-240V adjustable, 50/60 Hz
Chinese	220-240V AC, 50 Hz

Power consumption	14W
Dimensions (approx.) (w/h/d)	430 × 120 × 385 mm (17 × 4 3/4 × 15 1/4 in.) incl. projecting parts
Mass (approx.)	5.6 kg (12 lbs 6 oz)

Supplied accessories

Audio cord (2 phono plugs–2 phono plugs) (1)
Remote commander (remote)
Sony SUM-3 (NS) batteries
AC plug adaptor (1) (E model only)

Design and specifications are subject to change without notice.

MICROFILM

COMPACT DISC PLAYER

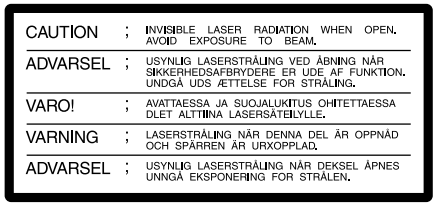
SONY®

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

This caution label is located inside the unit.

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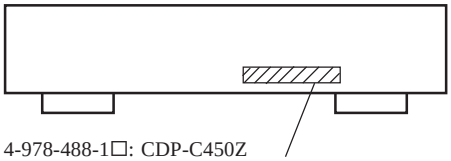
SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MODEL IDENTIFICATION
— BACK PANEL —



4-978-488-1□: CDP-C450Z
4-979-363-0□: CDP-CE505 (US model)
4-979-363-1□: CDP-CE505 (Canadian model)
4-979-363-2□: CDP-CE505 (AEP, German model
4-979-363-3□: CDP-CE505 (Australian model)
4-979-363-4□: CDP-CE505 (E model)
4-979-363-5□: CDP-CE505 (Chinese model)

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

SAFETY CHECK-OUT
(US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

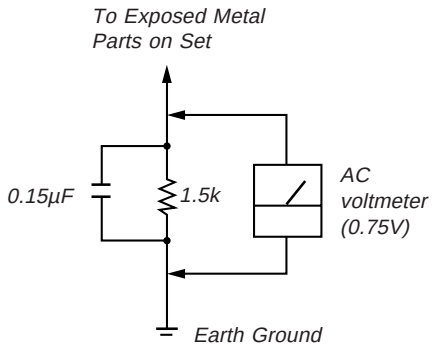
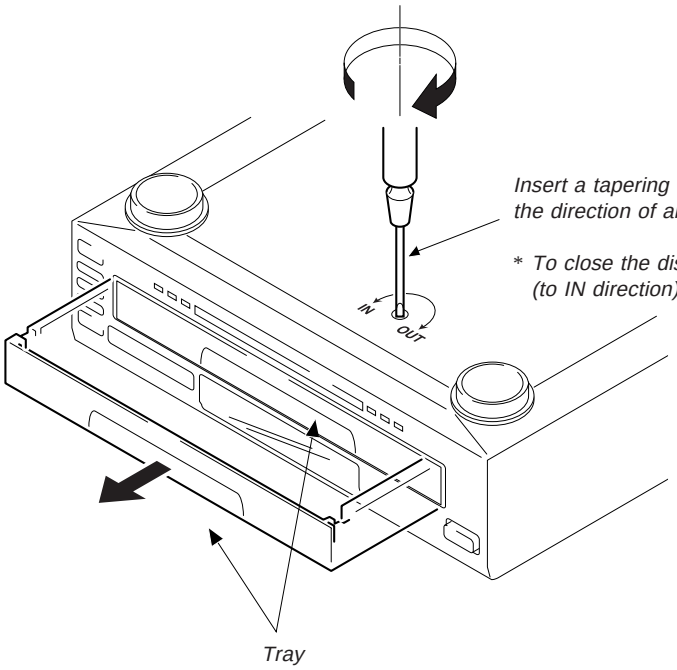


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 1
SERVICE NOTE

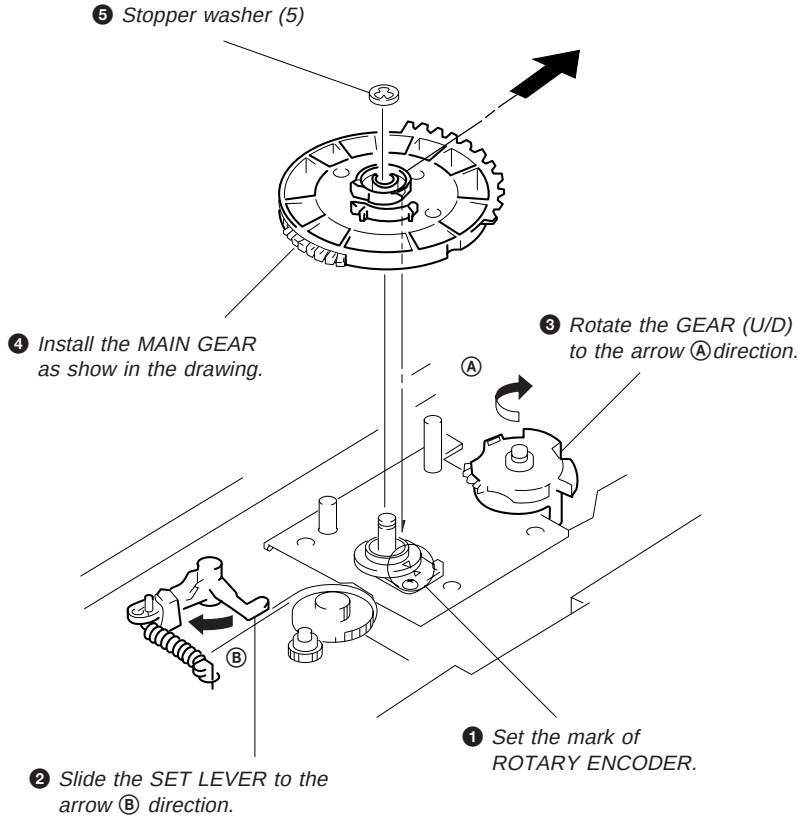
HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



Insert a tapering driver into the aperture of the unit bottom, and turn in the direction of arrow (to OUT direction).

** To close the disc tray, turn the driver in the reverse direction (to IN direction).*

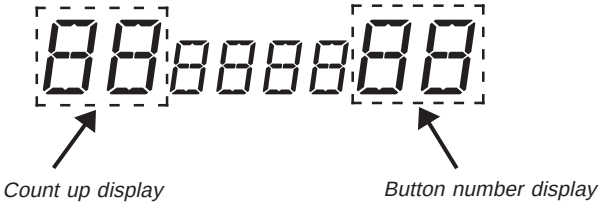
NOTE FOR MAIN GEAR INSTALLATION


❺ Stopper washer (5)
❹ Install the MAIN GEAR as show in the drawing.
❸ Rotate the GEAR (U/D) to the arrow Ⓐ direction.
Ⓐ
Ⓑ
❶ Set the mark of ROTARY ENCODER.
❷ Slide the SET LEVER to the arrow Ⓑ direction.

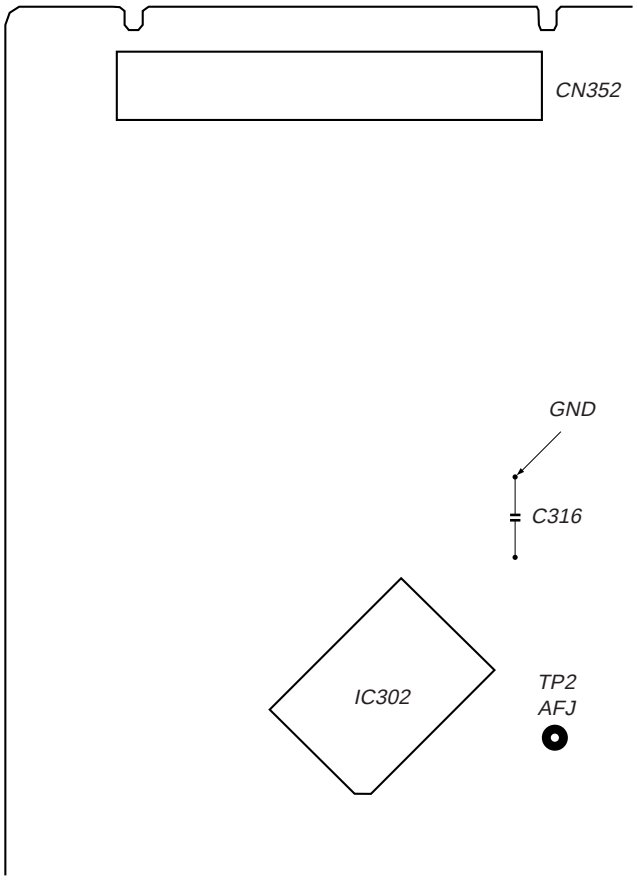
TEST MODE

[Fluorescent Indicator Tube Full Lighting and Key Check Mode]

1. Connect the test point TP2 (AFJ) of the main board to GND.
2. Turn on the power switch.
3. The fluorescent indicator tubes will light up fully.
4. Set the key check mode by pressing any button.
   In the key check mode, each time a button is pressed, the count up display will count up. However, the display will not count up for buttons that have already been pressed once.
   The number of the button pressed will be displayed in the indicator, only while the button is being pressed.
5. To exit the test mode, disconnect the power plug from the outlet.



[MAIN BOARD] (Conductor Side)



Button	Button number display
1	06
2	32
3	31
4	30
5	29
6	28
7	27
8	00
9	01
10	02
>10	03
EDIT/TIME FADE	04
PEAK SEARCH	05
DISC CHECK	34
EX-CHANGE	33
DISC SKIP	36
OPEN/CLOSE ⏏	37
▶▶	44
◀◀	43
AMS ▷▷I	41
AMS I◁◁	42
REPEAT	14
CLEAR	13
CHECK	12
PROGRAM	11
SHUFFLE	10
CONTINUE	09
DISC 1	19
DISC 2	20
DISC 3	17
DISC 4	16
DISC 5	15
MUSIC CLIP A	21
MUSIC CLIP B	22
MUSIC CLIP C	23
MUSIC CLIP D	24
FILE	25
ERASE	26
TIME	18
■	Fluorescent indicator fully lit.
▯▯	Even and odd numbers of music calendar light up alternately 1 3 5 / 7 9 / 11 13 15 / 17 19 2 4 / 6 8 10 / 12 14 / 16 18 20
▷	Alternate lighting on 7-segment display 8888 ⟷ 8888

SECTION 2
GENERAL

Identifying the Parts

Front Panel

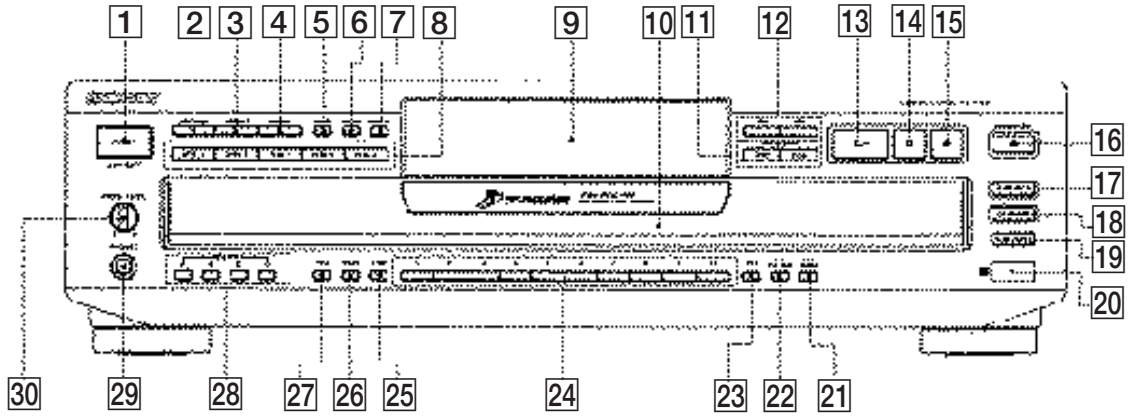


Illustration : CE505 model

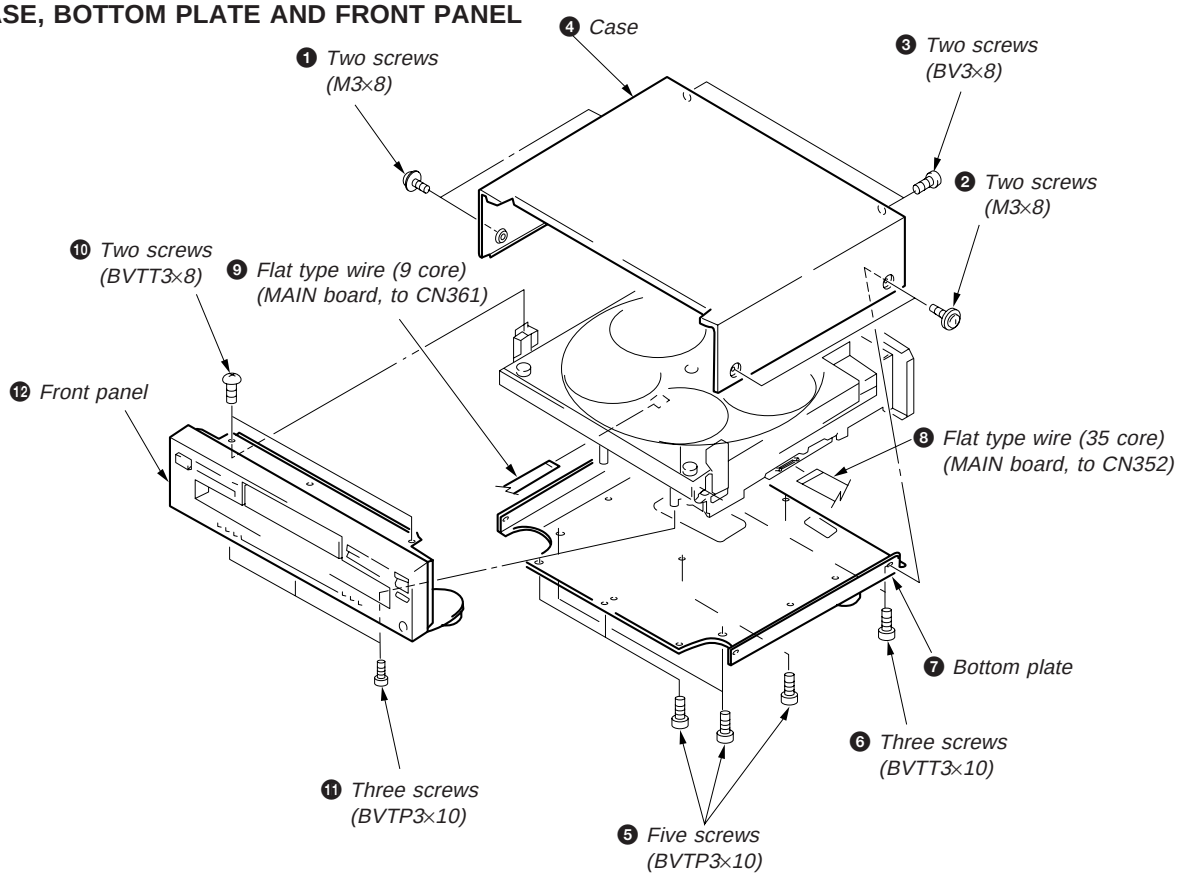
1 POWER switch
2 CONTINUE button
3 SHUFFLE button
4 PROGRAM button
5 CHECK button
6 CLEAR button
7 REPEAT button
8 DISC 1-5 buttons
9 Display window
10 Disc tray
11 ⏮/⏭ (AMS*) buttons
12 ◀◀/▶▶ (manual search) buttons
13 ▷ (play) button
14 ❚❚ (pause) button
15 ■ (stop) button
16 ⏏ OPEN/CLOSE button
17 DISC SKIP button
18 EX-CHANGE button
19 DISC CHECK button (CDP-CE505 only)
20 Remote sensor
21 PEAK SEARCH button (CDP-CE505 only)
22 EDIT/TIME FADE button (CDP-CE505 only)
23 >10 (over 10) button
24 Numeric (1-10) buttons
25 TIME button
26 ERASE button
27 FILE button
28 MUSIC CLIP button
29 PHONES jack
30 PHONES LEVEL control

* AMS is the abbreviation for Automatic Music Sensor.

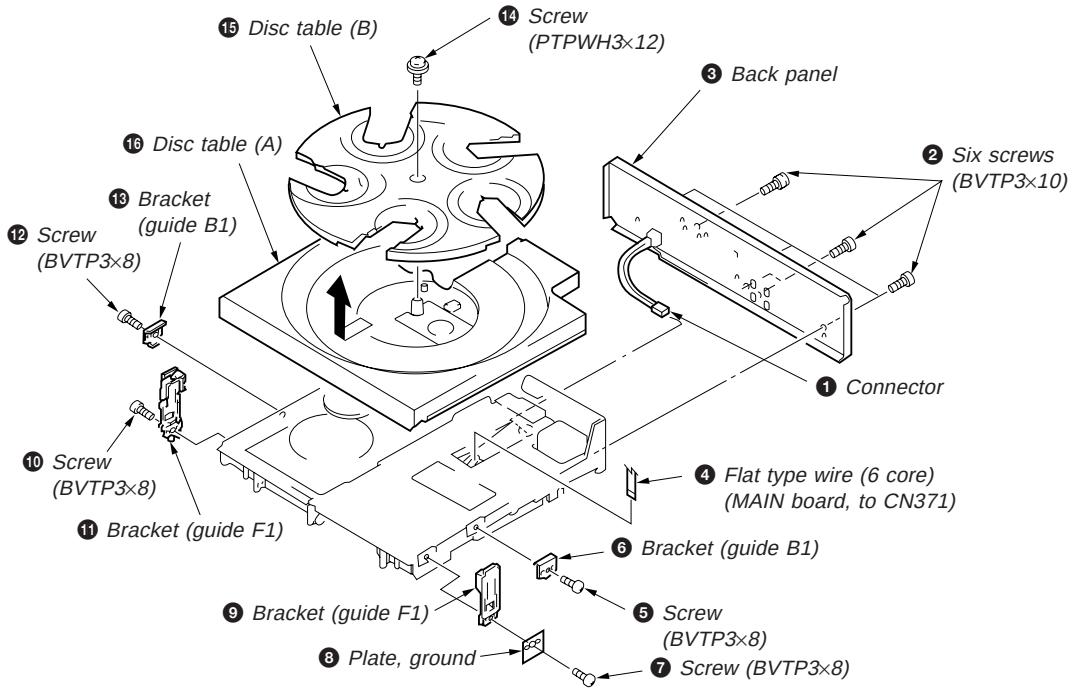
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

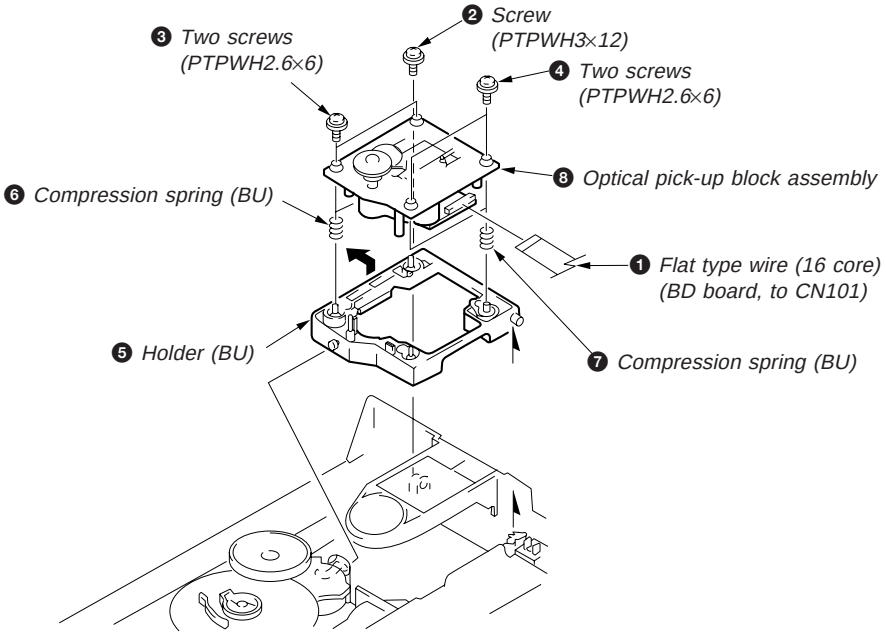
3-1. CASE, BOTTOM PLATE AND FRONT PANEL


❹ Case
❶ Two screws (M3×8)
❸ Two screws (BV3×8)
❷ Two screws (M3×8)
❿ Two screws (BVTT3×8)
❾ Flat type wire (9 core) (MAIN board, to CN361)
⓬ Front panel
❽ Flat type wire (35 core) (MAIN board, to CN352)
❼ Bottom plate
❻ Three screws (BVTT3×10)
⓫ Three screws (BVTP3×10)
❺ Five screws (BVTP3×10)

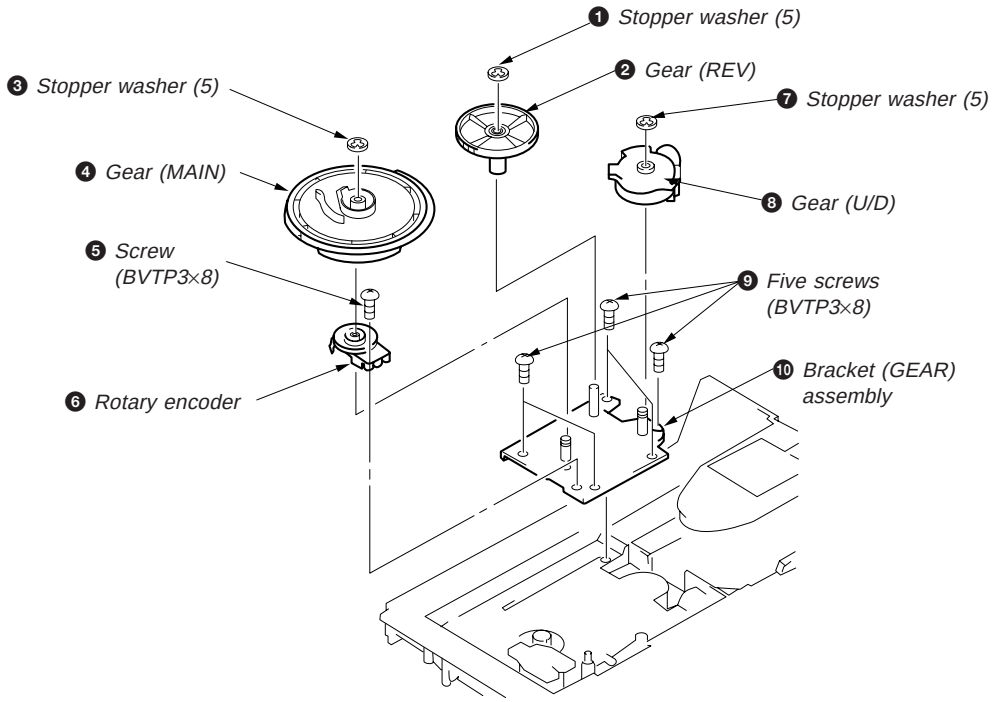
3-2. BACK PANEL AND DISC TABLE



3-3. OPTICAL PICK-UP BLOCK ASSEMBLY



3-4. BRACKET (GEAR) ASSEMBLY

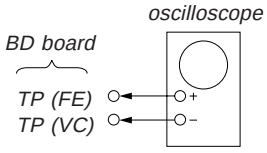


Note : As for the installation of the main gear, refer to “Note for MAIN GAER installation” on page 4.

SECTION 4
ELECTRICAL BLOCK CHECKING

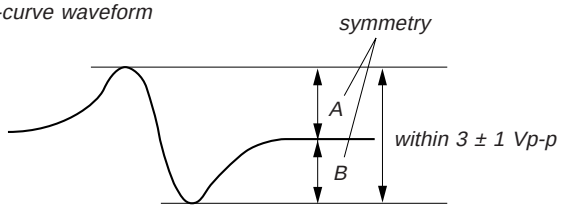
Note :
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10M impedance.
4. Clean the object lens using an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check



Procedure :
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turn Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check if the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

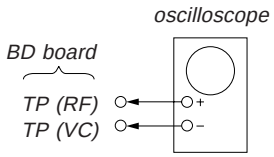
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

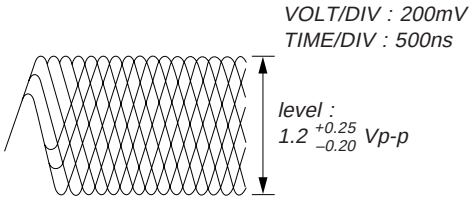
RF Level Check



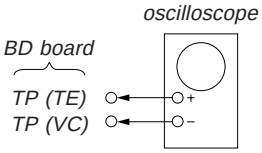
Procedure :
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check if RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform

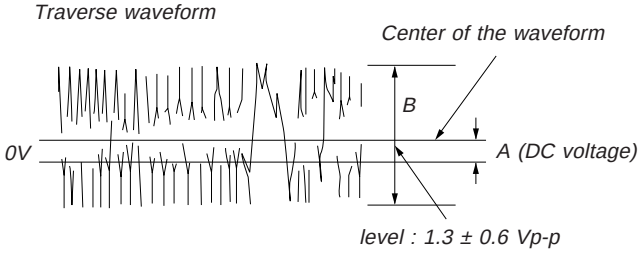


E-F Balance Check



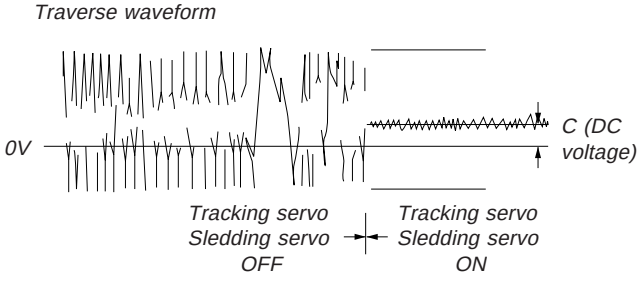
Procedure :
1. Connect test point TP1 (ADJ) to ground with a lead wire on MAIN board.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the "3" button. (The tracking servo and the sledding servo are turned OFF.)
6. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 22%

Traverse waveform



7. Press the "8" button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

Traverse waveform

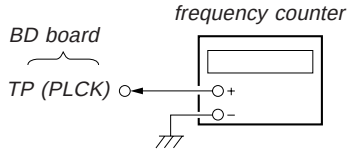


8. Disconnect the lead wire of TP (ADJ) connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

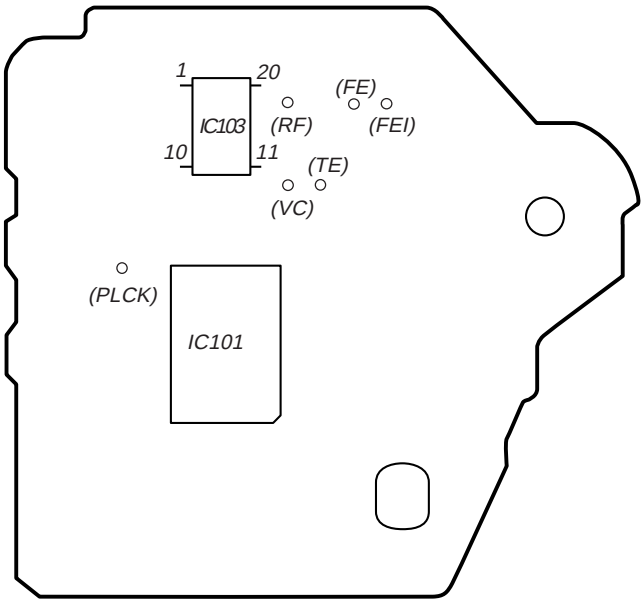
1. Connect frequency counter to test point (PLCK) with lead wire.



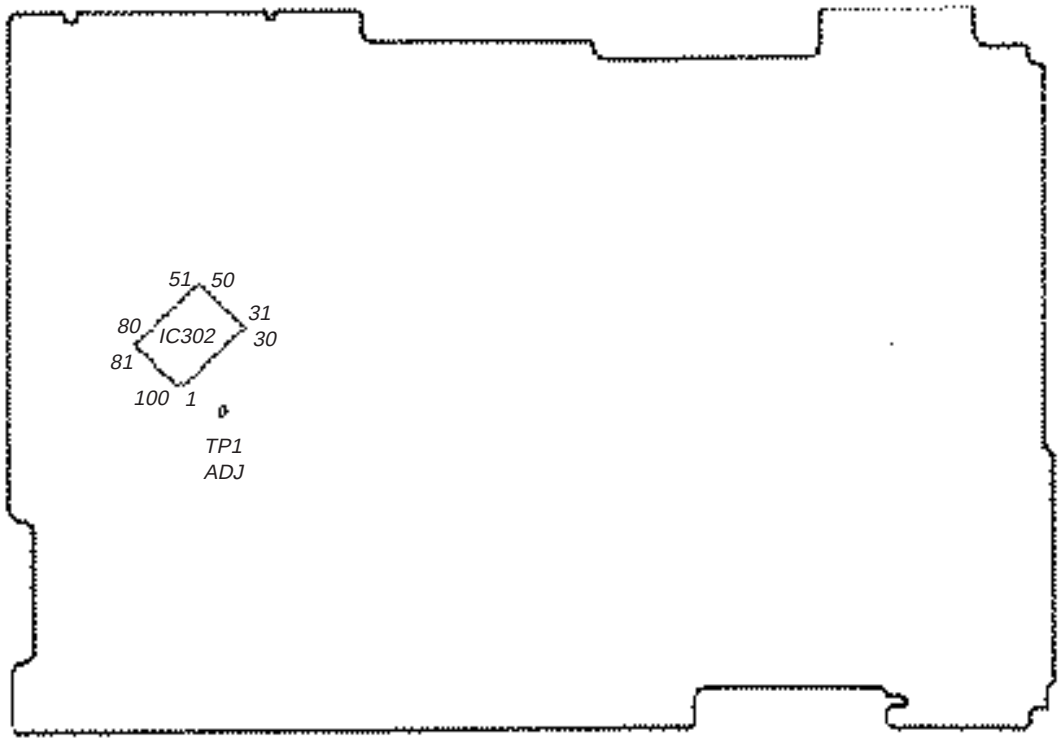
2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track.
   Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Conductor Side —



[MAIN BOARD] — Conductor Side —



SECTION 5
DIAGRAMS

5-1. IC PIN FUNCTIONS

• IC101 DIGITAL SIGNAL PROCESSOR (CXD2545Q)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Not used)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Not used)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Not used)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Not used)
12	VCOO	O	VCO output for analog EFM PLL (Not used)
13	VCOI	I	VCO output for analog EFM PLL (Ground)
14	TEST	I	TEST pin connected normally to Ground
15	DVss	–	Digital Ground
16	TES2	I	TEST pin connected normally to Ground
17	TES3	I	TEST pin connected normally to Ground
18	PDO	O	Charge-pump output for analog EFM PLL (Not used)
19	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
20	VCKI	I	Clock input from variable pitch external VCO (Ground)
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog Ground
24	ADIO	I	(Not used)
25	RFC	O	(Not used)
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog Ground
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

• Abbreviation
EFM: Eight to Fourteen Modulation
PLL: Phase Locked Loop

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock.
45	LRCK	O	48-bit slot D/A interface. LR clock.
46	DATA	O	DA 16 output when PSSL=1.48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1.48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
49	64BCLK	O	DA 13 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
50	64LRCK	O	DA 12 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
51	GTOP	O	DA 11 output when PSSL=1.GTOP output when PSSL=0 (Not used)
52	XUGF	O	DA 10 output when PSSL=1.XUGF output when PSSL=0 (Not used)
53	XPLCK	O	DA 09 output when PSSL=1.XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1.GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1.RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1.C2PO output when PSSL=0 (Not used)
57	XRAOF	O	DA 05 output when PSSL=1.XRA0F output when PSSL=0
58	MNT3	O	DA 04 output when PSSL=1.MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1.MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1.MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1.MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Not used)
64	XTSL	I	X'tal selection input pin (Ground)
65	DVss	–	Digital Ground
66	FSTI	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	FSOF	O	(Not used)
69	C16M	O	16.9344 MHz output (Not used)
70	MD2	I	Digital-out ON/OFF control pin (+5V)
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Not used)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output (Not used)
76	EXCK	I	Clock input for SBS0 read-out (Ground)
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Muting selection pin
79	MUTE	I	SENS output
80	SENS	O	System reset

• Abbreviation
WFCK: Wirte Frame Check

Pin No.	Pin Name	I/O	Function
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode (+5v)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	Defect selection pin (Ground)
85	ATSK	I	Input pin for anti-shock (Ground)
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Not used)
90	DV_{DD}	–	Digital power supply
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter (Not used)
95	MON	O	Output to control ON/OFF of spindle motor (Not used)
96	NDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Not used)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

• Abbreviation
GFS: Guard Frame Sync

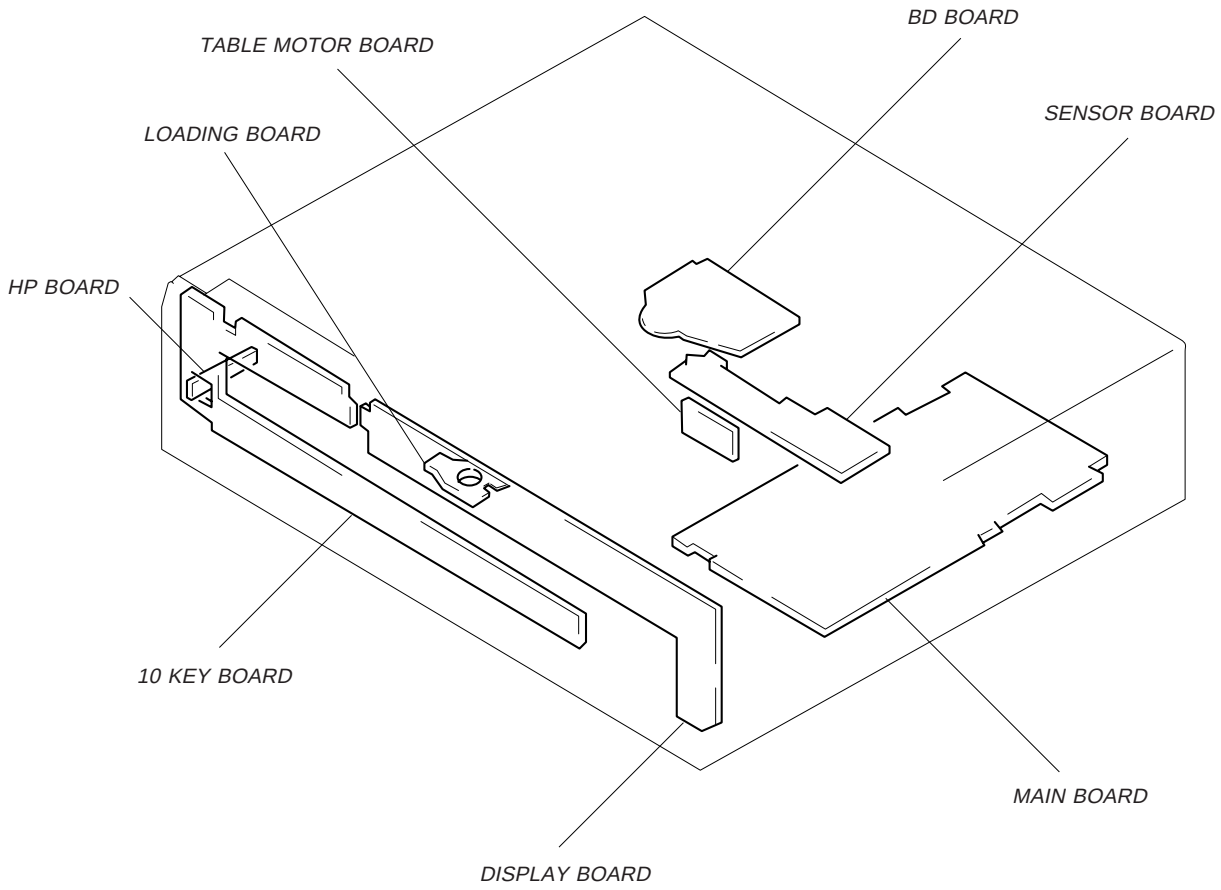
• **IC302 SYSTEM CONTROL (CXP82224-042Q)**

Pin No.	Pin Name	I/O	Function
1	SENSE	I	SENSE signal input pin.
2	SCOR	I	Subcode Q data readout timing signal input pin.
3	BSIN	I	Control A signal input pin.
4	RM IN	I	Remote control signal input pin.
5	ADJ	I	Test mode pin. Normally: “H”
6	XLT	O	Serial data latch signal output pin.
7	LDON	O	Optical pick-up laser diode control pin. ON: “H”
8	T.SENS	I	Slit sensor of disc table input pin.
9	PRGL	O	Latch signal output pin to digital filter IC.
10	CLK	O	Serial clock output pin to BD.
11	A MUTE	O	Analog muting control signal output pin.
12	DATA	O	Serial data output pin.
13	SQCK	O	Subcode Q data readout clock output pin.
14	SUBQ	I	Subcode Q data input pin.
15	SCLK	O	Internal register of SSP/DSP readout clock output pin.
16 to 19	LED A to D	O	LED drive signal output pin.
20	BSOUT	I	Control A signal output pin.
21	WE	O	Read/write timing output pin.
22	A12	O	S-RAM address control output pin.
23	AFADJ	—	Test mode pin. Normally: “H”
24 to 26	S1 to S3	—	Loading encoder input pin.
27	FB. MODE	I	Disc table feeling and stop precision fine adjustment pin.
28	LDOUT	O	} Loading motor control pin.
29	LDIN	O	
30	TBLR	O	} Table motor control pin.
31	TBLL	O	
32 to 36	KEY1 to KEY5	I	Key input pin. (A/D)
37	P. MODE	I	Not used.
38	RST	I	Reset signal input pin.
39	EXTAL	I	10MHz clock input pin.
40	XTAL	O	10MHz clock output pin.
41	Vss	—	Ground
42	TX	—	} Not used.
43	TEX	—	
44	V-LEVEL	I	Volume level input pin. (Not used.)
45	—	—	Not used.
46	AV_{REF}	I	Reference voltage input pin of A/D conversion.
47	AVss	—	Ground
48 to 59	A0 to A11	O	S-RAM address control output pin.
60 to 79	S1 to S20	O	FL segment output pin.

• Abbreviation
FL: Fluorescent indicator tube

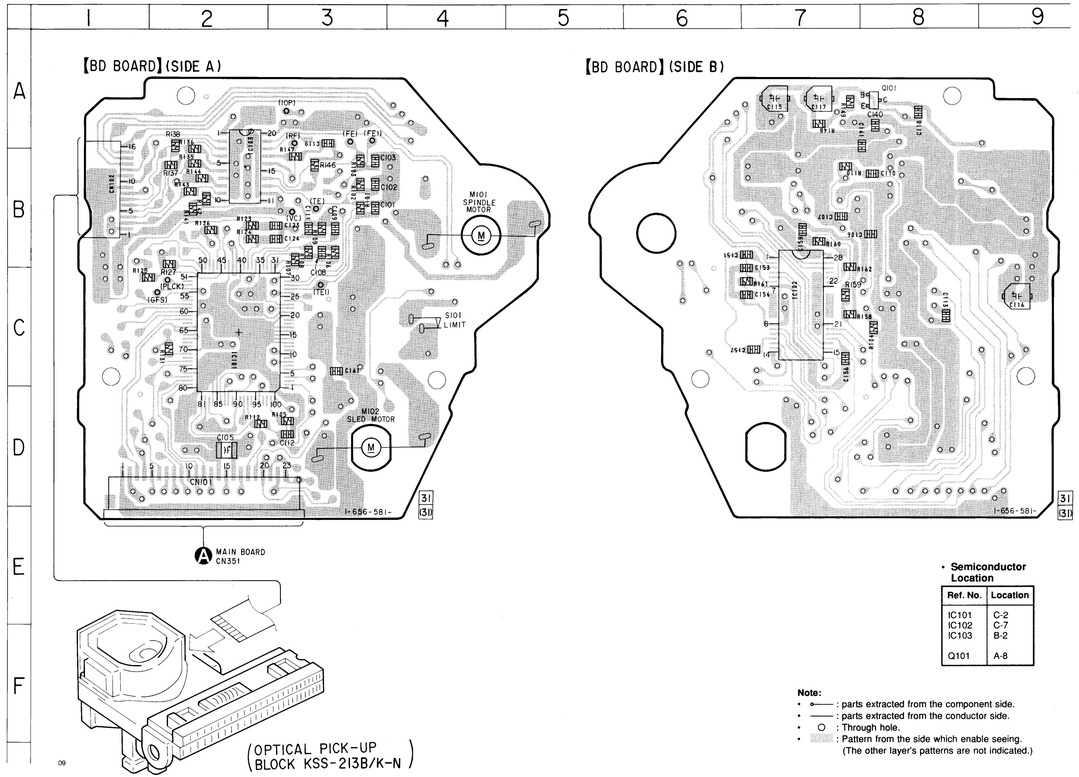
Pin No.	Pin Name	I/O	Function
80 to 87	G1 to G8	O	FL timing output pin.
88	VFDP	I	FL drive voltage input pin.
89	V_{DD}	—	Power supply pin.
90	NC	—	Connected to V_{DD}.
91	Vss	—	Ground
92 to 99	D0 to D7	I/O	S-RAM data bus.
100	DSENS	I	Disc sensor input pin.

5-2. CIRCUIT BOARDS LOCATION



5-3. PRINTED WIRING BOARD — BD SECTION —

• See page 16 for Circuit Boards Location.



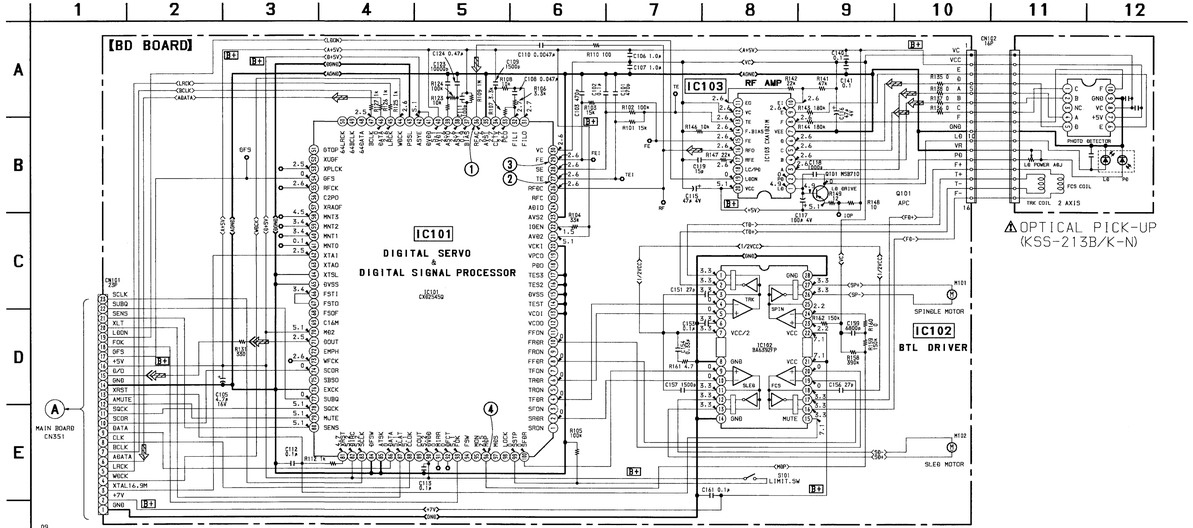
• Semiconductor Location

Ref. No.	Location
IC101	C-2
IC102	C-7
IC103	B-2
Q101	A-8

Note:
- ⟜: parts extracted from the component side.
- ——: parts extracted from the conductor side.
- ○: Through hole.
- : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

5-4. SCHEMATIC DIAGRAM — BD SECTION —

• See page 11 for IC Pin Functions. (IC101)
• See page 29 for IC Block Diagrams.



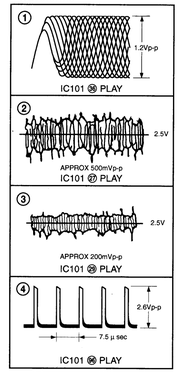
NOTE
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ :B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark: STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

- Signal path.
  ⇨ :CD
  ⇨ :digital out

• Waveforms

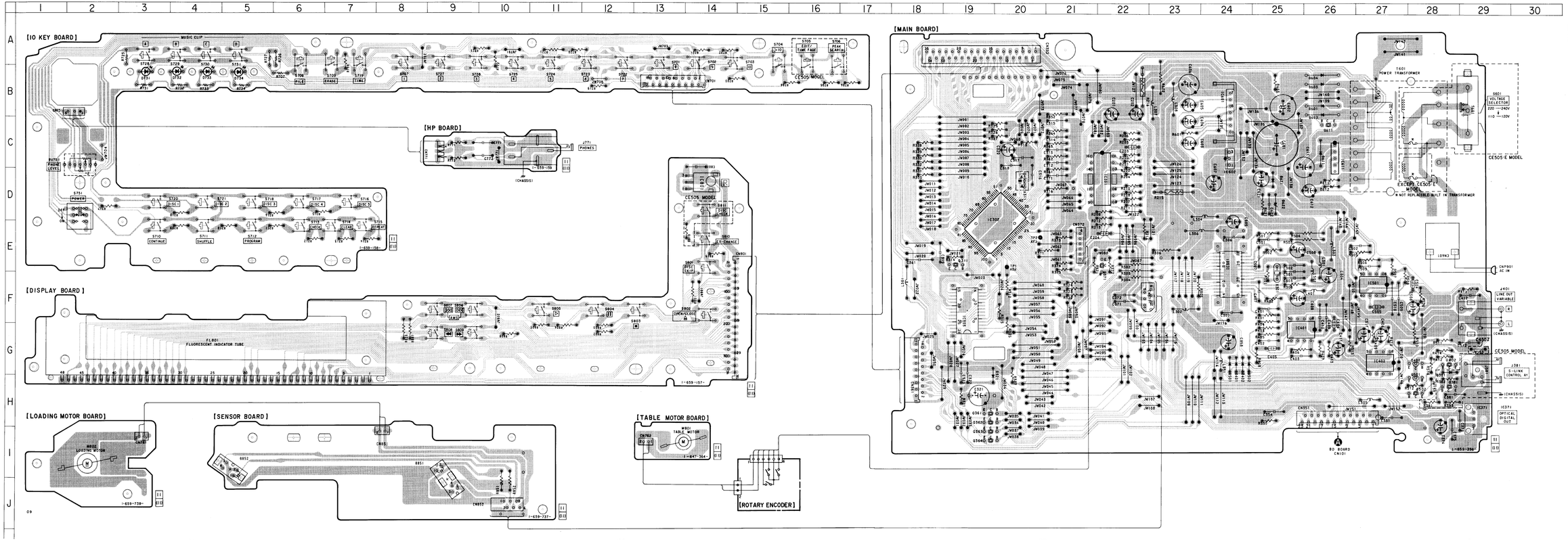


5-5. PRINTED WIRING BOARD — MAIN SECTION —

• See page 16 for Circuit Boards Location.

Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- △ : internal component.
- : Pattern from the side which enable seeing.



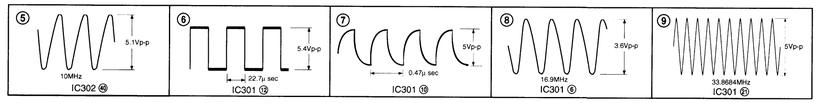
• **Semiconductor Location**

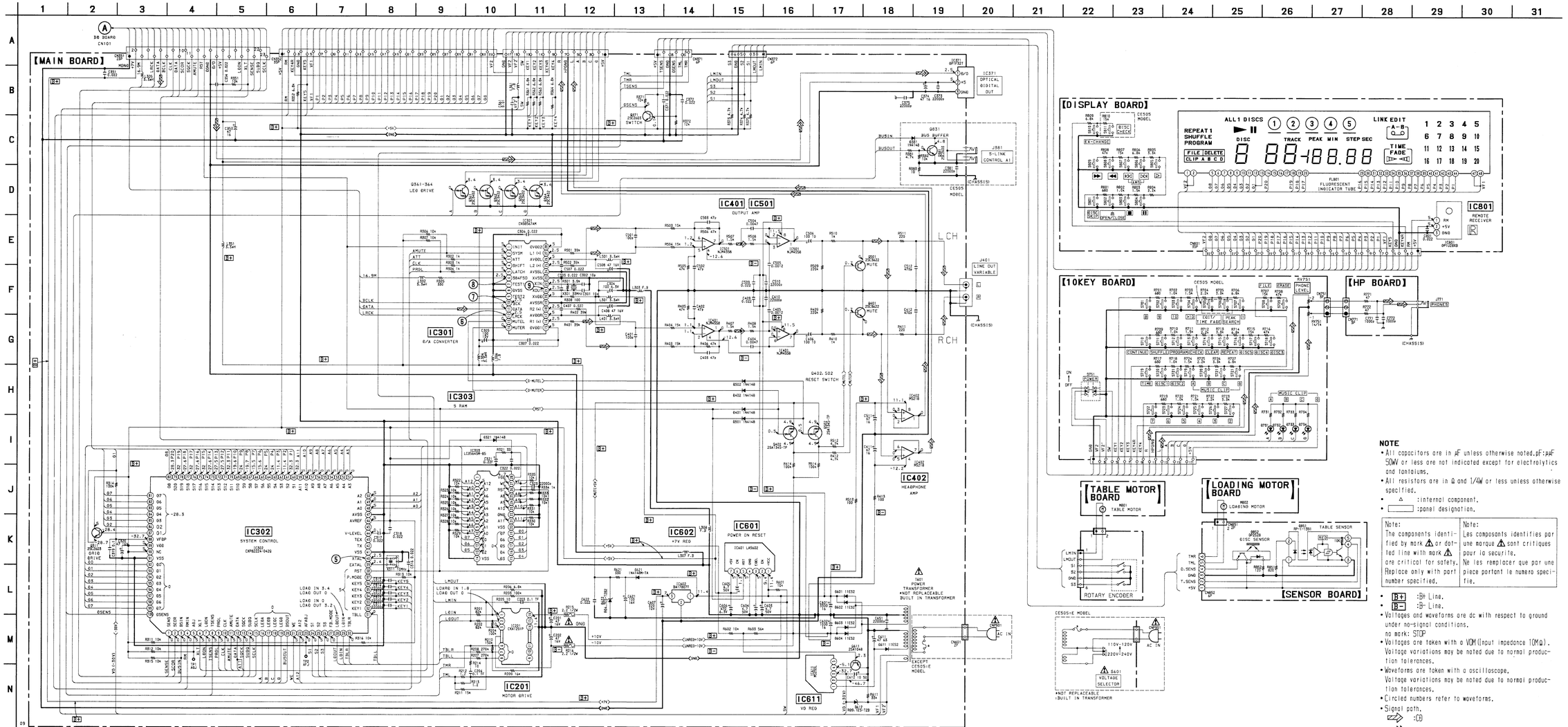
Ref. No.	Location
D321	H-20
D381	H-28
D401	G-24
D402	G-24
D501	G-24
D502	G-25
D601	B-26
D602	B-26
D603	B-26
D604	B-26
D611	C-26
D612	D-26
D621	D-25
D622	D-25
D731	B-3
D732	B-4
D733	B-4
D734	B-5
D851	I-9
D852	I-5
IC201	D-22
IC301	F-24
IC302	E-20
IC303	F-19
IC371	H-29
IC401	G-26
IC402	G-27
IC501	F-27
IC601	B-24
IC602	C-24
IC611	C-26
IC801	D-14
Q311	E-19
Q361	H-19
Q362	H-19
Q363	I-19
Q364	I-19
Q371	E-22
Q381	H-28
Q401	G-28
Q402	G-28
Q501	H-28
Q502	H-28
Q611	C-26

5-6. SCHEMATIC DIAGRAM — MAIN SECTION —

- See page 14 for IC Pin Functions. (IC302)
- See page 29 for IC Block Diagrams.

• Waveforms





NOTE

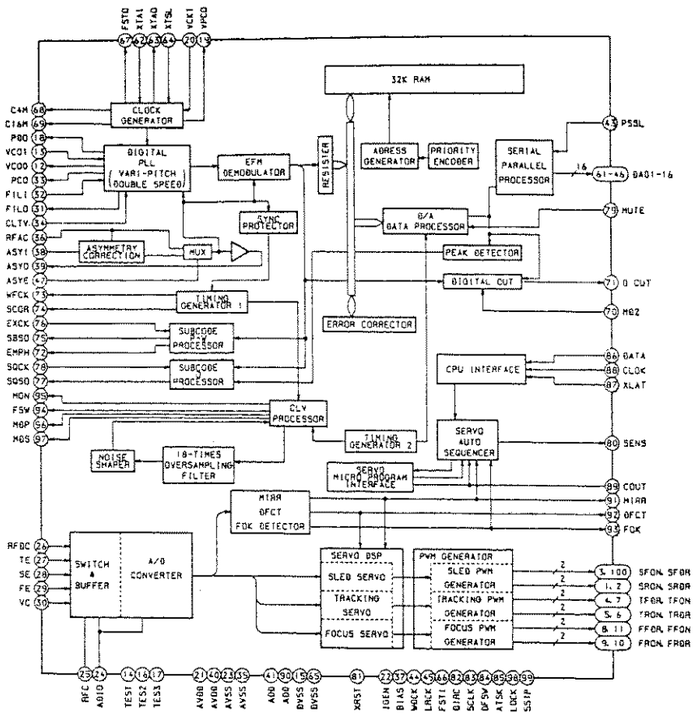
- All capacitors are in μF unless otherwise noted. pF: μF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- □ :panel designation.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifies par une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

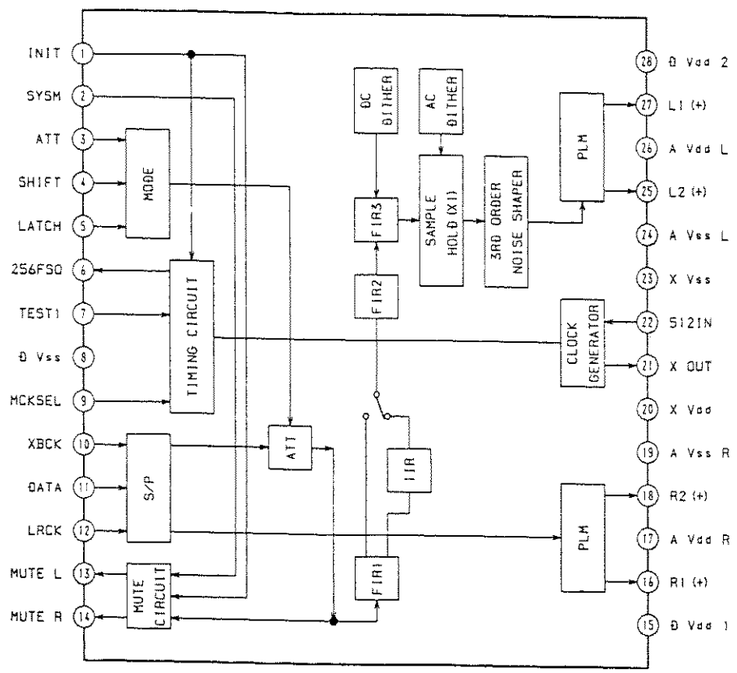
- B+ :B+ Line.
- B- :B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ :CD
  ⇨ :digital out

5-7. IC BLOCK DIAGRAMS

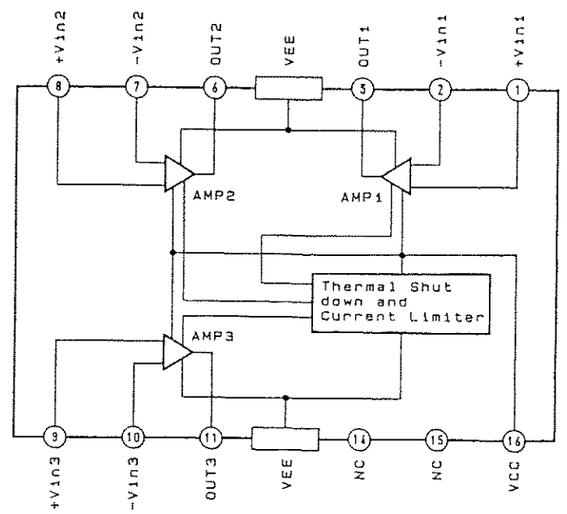
IC101 CXA2545Q



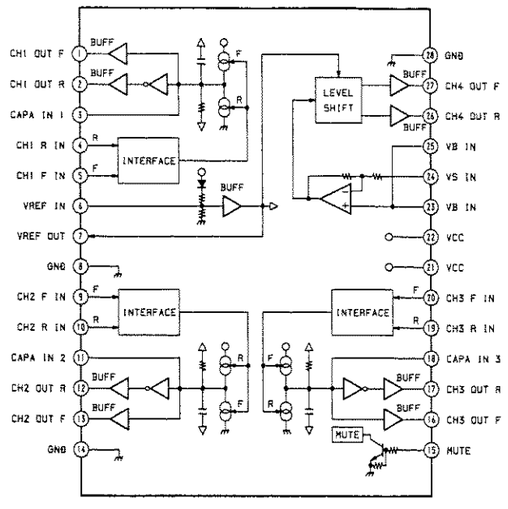
IC301 CXD8567AM



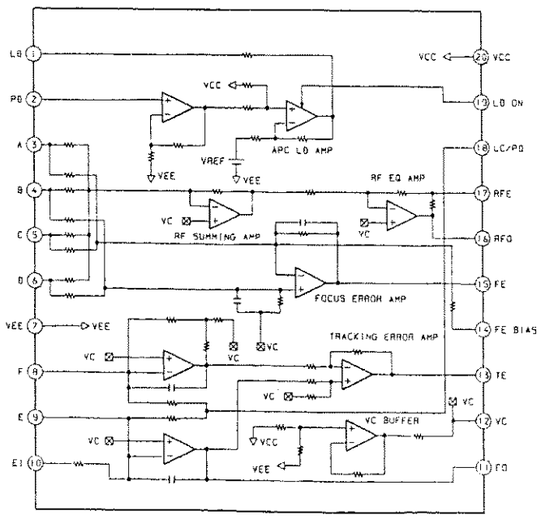
IC201 CXA1291P



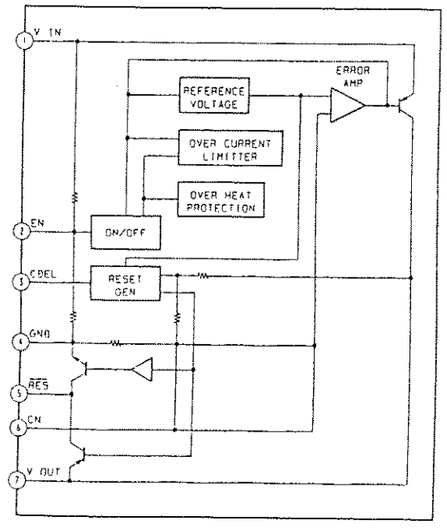
IC102 BA6392FP



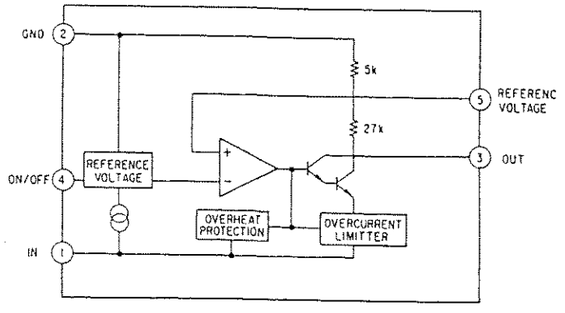
IC103 CXA1821M



IC601 LA5602



IC611 M5293L



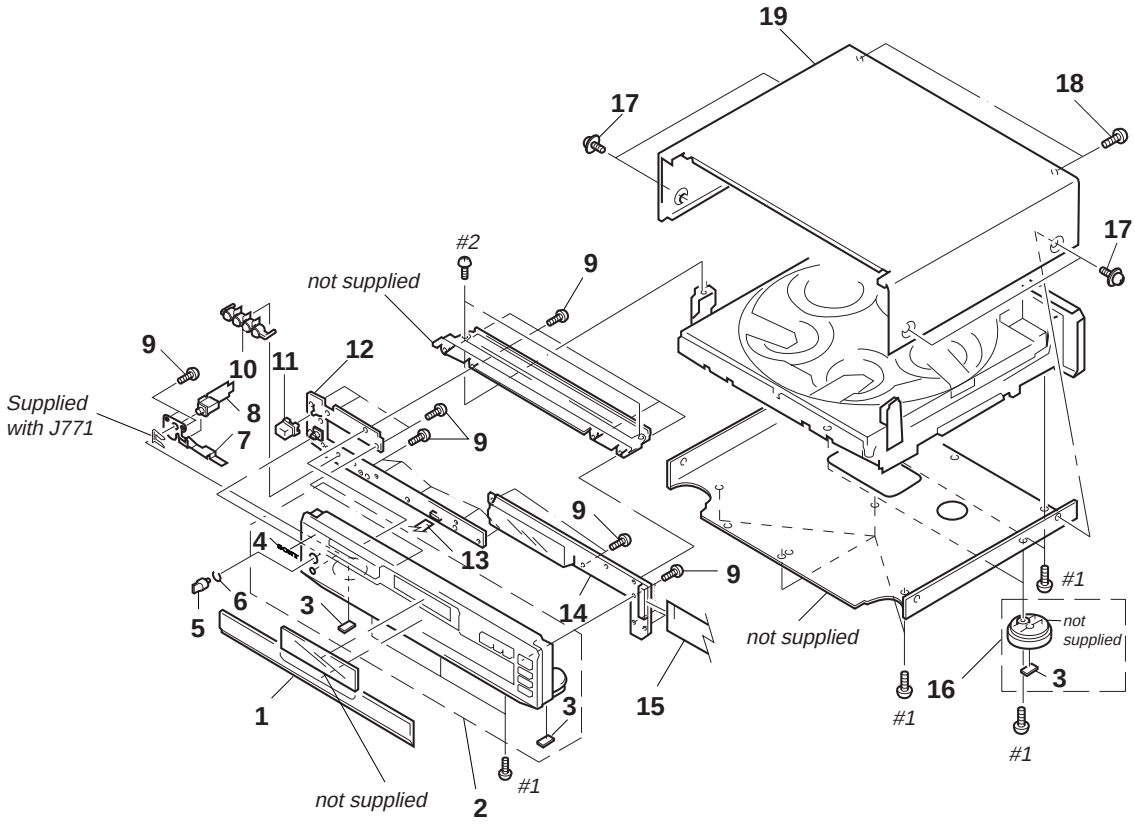
SECTION 6
EXPLODED VIEWS

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CND: Canadian model
  G: German model
  AUS: Australian model
  CH: Chinese model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

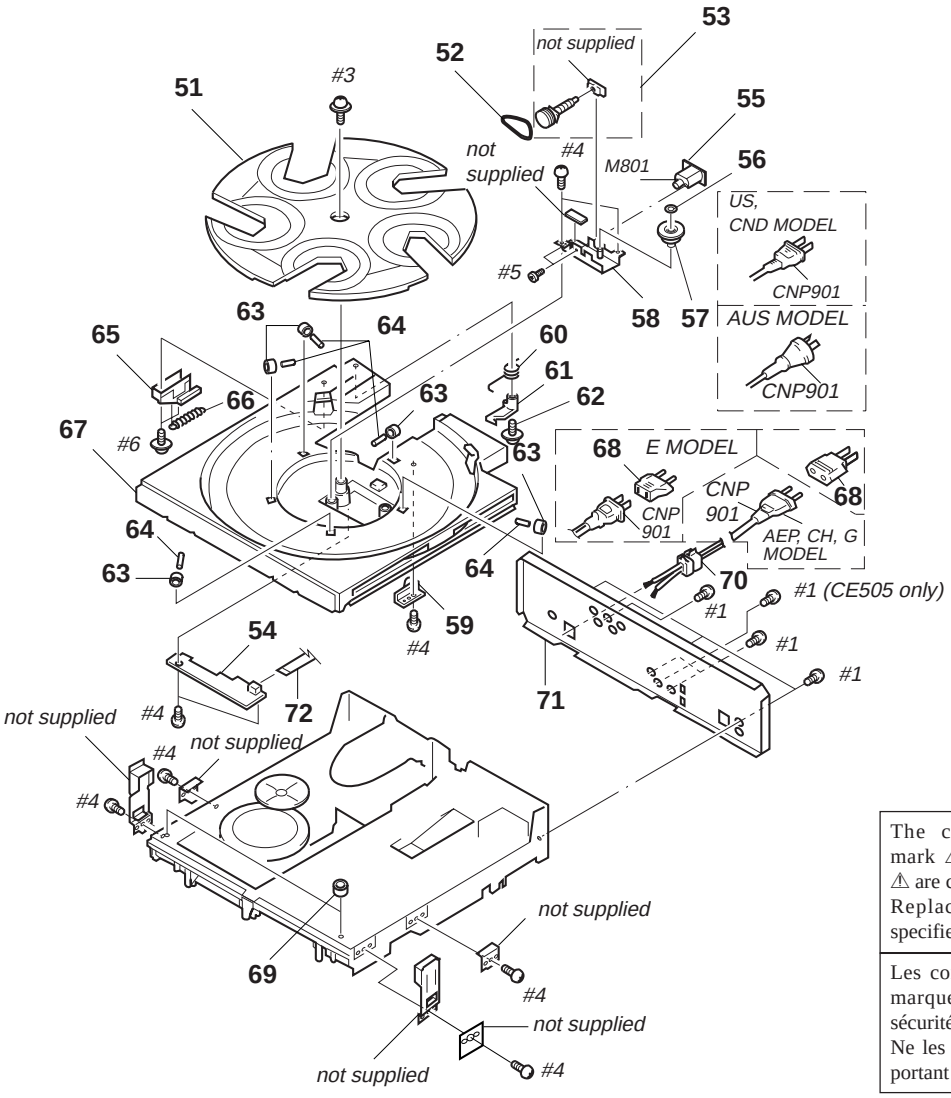
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

6-1. FRONT PANEL AND CASE SECTION



Ref. No.	Part No.	Description	Remark
1	4-978-488-11	PANEL, LOADING	
2	X-4946-647-1	PANEL ASSY, FRONT (CE505:US,CND)	
2	X-4946-648-1	PANEL ASSY, FRONT (CE505:AEP,G,E,AUS,CH)	
2	X-4946-963-1	PANEL ASSY, FRONT (C450Z)	
3	4-978-398-01	CUSHION	
4	4-963-404-21	EMBLEM (5-A), SONY	
5	4-979-091-01	KNOB (VOL)	
6	4-948-469-01	SPRING, RING (CE505)	
* 7	4-979-090-01	BRACKET (HP)	
* 8	1-659-159-11	HP BOARD	
9	4-951-620-01	SCREW (2.6X8), +BVTP	
* 10	4-979-089-01	HOLDER (LED)	
11	4-977-589-01	BUTTON (POWER)	
* 12	A-4673-811-A	10 KEY BOARD, COMPLETE (CE505)	
* 12	A-4673-955-A	10 KEY BOARD, COMPLETE (C450Z)	
13	1-776-239-11	WIRE (FLAT TYPE)(17 CORE)	
* 14	A-4673-812-A	DISPLAY BOARD, COMPLETE (CE505)	
* 14	A-4673-956-A	DISPLAY BOARD, COMPLETE (C450Z)	
15	1-776-125-11	WIRE (FLAT TYPE)(35 CORE)	
16	X-4946-618-1	FOOT ASSY (C450Z/CE505:US,CND)	
16	X-4946-641-1	FOOT ASSY (CE505:AEP,G,E,AUS,CH)	
17	3-704-366-01	SCREW (CASE)(M3X8)	
18	3-703-685-21	SCREW (+BV 3X8)	
* 19	4-978-492-11	CASE	

6-2. BACK PANEL AND DISC TABLE SECTION

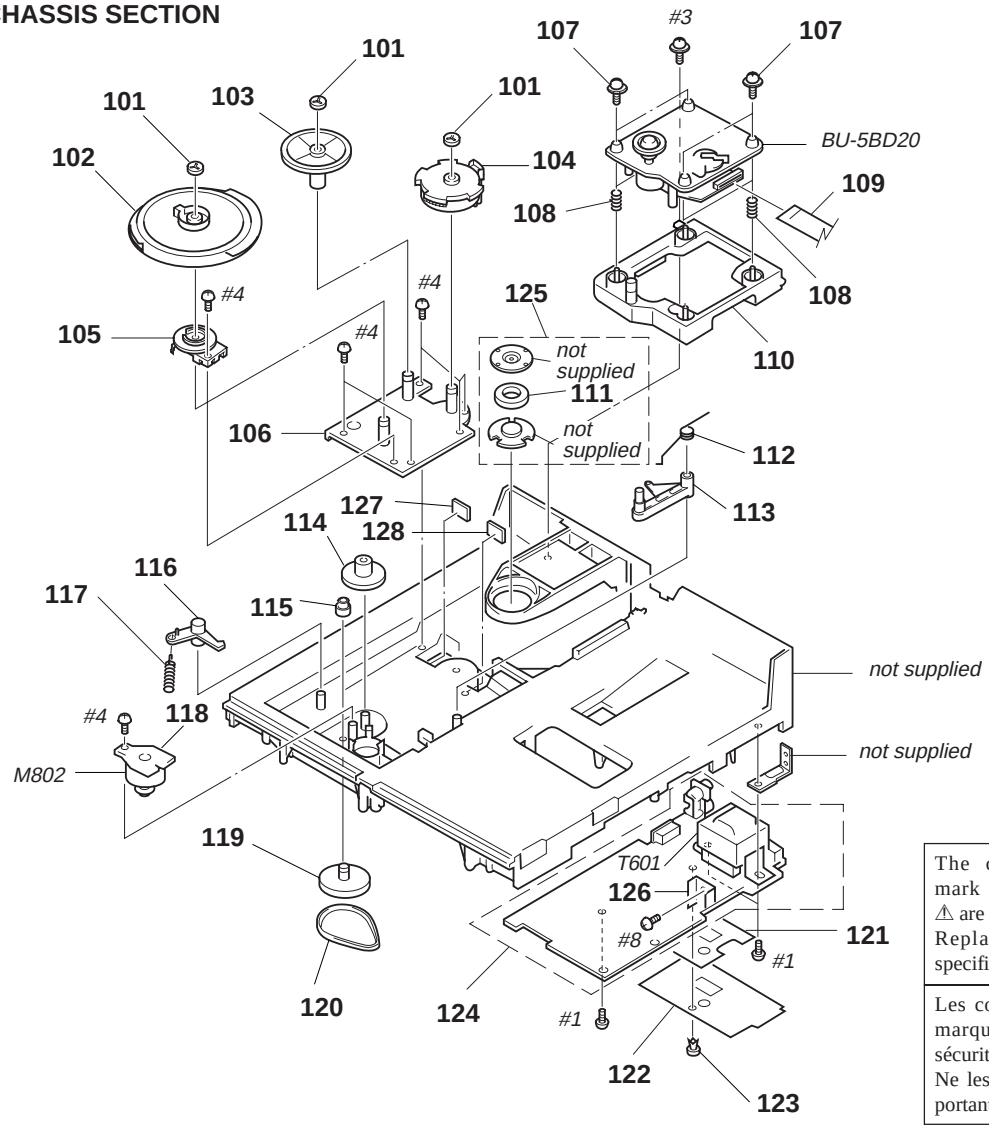


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	4-957-299-11	TABLE (B), DISC	
52	4-957-304-01	BELT (RM)	
53	X-4943-479-1	GEAR (ROTARY A) ASSY	
* 54	1-659-737-11	SENSOR BOARD	
* 55	1-647-364-11	TABLE MOTOR BOARD	
56	3-325-697-01	WASHER	
57	4-957-284-01	GEAR (ROTARY B)	
58	X-4943-477-1	BRACKET (RM) ASSY	
59	X-4943-480-1	BRACKET (ROLLER D) ASSY	
60	4-957-293-01	SPRING (RACK RELEASE)	
61	4-957-291-01	LEVER (RACK RELEASE)	
62	4-957-868-01	SCREW (+PTPWH 2.6X20)	
63	X-4924-457-1	ROLLER ASSY	
64	4-934-376-01	SHAFT (ROLLER)	
65	4-957-292-01	SLIDER (RACK)	
66	4-957-294-01	SPRING (D.T), TENSION	
67	4-957-298-01	TABLE (A), DISC	
⚠ 68	1-569-007-11	ADAPTER, CONVERSION 2P (CE505:E)	
⚠ 68	1-569-008-11	ADAPTER, CONVERSION 2P (CE505:CH)	
* 69	4-951-619-01	CUSHION (A)	
* 70	3-703-244-00	BUSHING (2104), CORD (C450Z/CE505:US,CND,AEP,G,AUS,CH)	
* 70	3-703-571-11	BUSHING (S)(4516), CORD (CE505:E)	
* 71	4-978-490-91	PANEL, BACK (C450Z)	
* 71	4-979-363-01	PANEL, BACK (CE505:US)	
* 71	4-979-363-11	PANEL, BACK (CE505:CND)	
* 71	4-979-363-21	PANEL, BACK (CE505:AEP,G)	
* 71	4-979-363-31	PANEL, BACK (CE505:AUS)	
* 71	4-979-363-41	PANEL, BACK (CE505:E)	
* 71	4-979-363-51	PANEL, BACK (CE505:CH)	
72	1-751-052-11	WIRE (FLAT TYPE)(6 CORE)	
M801	A-4660-525-A	MOTOR ASSY, ROTARY (TABLE)	
⚠ CNP901	1-558-943-61	CORD, POWER (CE505:E)	
⚠ CNP901	1-575-651-21	CORD, POWER (CE505:AEP,G,CH)	
⚠ CNP901	1-590-926-11	CORD, POWER (C450Z/CE505:US,CND)	
⚠ CNP901	1-696-845-11	CORD, POWER (CE505:AUS	

6-3. CHASSIS SECTION



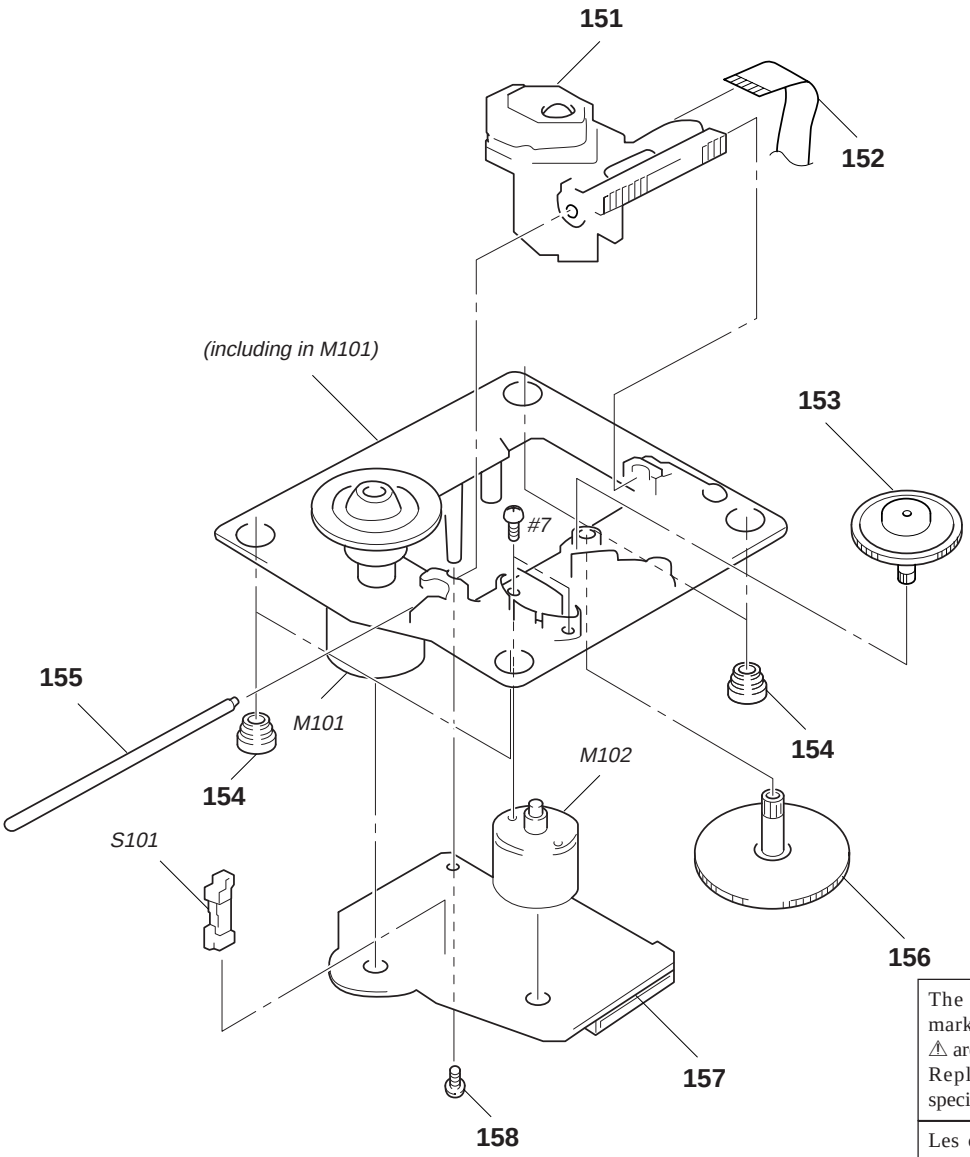
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	4-957-283-01	WASHER (5), STOPPER	
102	4-957-288-01	GEAR (MAIN)	
103	4-957-287-01	GEAR (REV)	
104	4-957-286-01	GEAR (U/D)	
105	1-466-996-11	ENCODER, ROTARY	
106	X-4946-195-1	BRACKET (GEAR) ASSY	
107	4-933-134-01	SCREW (+PTPWH M2.6X6)	
108	4-948-503-01	SPRING (BU), COMPRESSION	
109	1-765-443-11	WIRE (FLAT TYPE)(23 CORE)	
110	4-957-289-12	HOLDER (BU)	
111	1-452-538-41	MAGNET	
112	4-957-281-01	SPRING (LOCK LEVER)	
113	4-957-279-01	LEVER, LOCK	
114	4-957-303-01	GEAR (LOADING C)	
115	4-934-375-01	GEAR (LOADING B)	
116	4-957-285-01	LEVER, SET	
117	4-962-087-01	SPRING (S), TENSION	
* 118	1-659-738-11	LOADING BOARD	

Ref. No.	Part No.	Description	Remark
119	X-4941-529-1	PULLEY ASSY	
120	4-944-490-01	BELT (TIMING)	
* 121	4-957-555-11	SHEET, INSULATING (CE505:AEP,G,E,AUS,CH)	
* 122	4-957-556-11	SHEET, INSULATING (CE505:AEP,G,E,AUS,CH)	
123	3-531-576-11	RIVET (CE505:AEP,G,E,AUS,CH)	
* 124	A-4673-813-A	MAIN BOARD, COMPLETE (CE505:US,CND)	
* 124	A-4673-815-A	MAIN BOARD, COMPLETE(CE505:AEP,G,AUS,CH)	
* 124	A-4673-816-A	MAIN BOARD, COMPLETE (CE505:E)	
* 124	A-4673-957-A	MAIN BOARD, COMPLETE (C450Z)	
* 125	A-4660-652-A	MAGNET ASSY	
* 126	4-922-525-01	HEAT SINK	
* 127	4-981-731-01	CUSHION (U/D)	
* 128	4-981-731-11	CUSHION (U/D)	
M802	A-4660-914-A	MOTOR ASSY, LOADING (LOADING)	
⚠T601	1-423-830-11	TRANSFORMER, POWER (C450Z/CE505:US,CND)	
⚠T601	1-429-394-11	TRANSFORMER, POWER (CE505:AEP,G,AUS,CH)	
⚠T601	1-429-395-11	TRANSFORMER, POWER (CE505:E)	

6-4. BASE UNIT SECTION (BU-5BD20)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠151	8-848-367-11	OPTICAL PICK UP KSS-213B/K-N	
152	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
153	4-917-567-21	GEAR (M)	
154	4-951-940-01	INSULATOR (BU)	
155	4-917-565-01	SHAFT, SLED	
156	4-917-564-01	GEAR (P), FLATNESS	

Ref. No.	Part No.	Description	Remark
157	A-4673-509-A	BD BOARD, COMPLETE	
158	4-951-620-01	SCREW (2.6X8), +BVTP	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

SECTION 7
ELECTRICAL PARTS LIST

10 KEY

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB...,
  uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  CND: Canadian model
  G: German model
  AUS: Australian model
  CH: Chinese model

Ref. No.	Part No.	Description				Remark
*	A-4673-955-A	10 KEY BOARD, COMPLETE (C450Z)				
		**********				
*	A-4673-811-A	10 KEY BOARD, COMPLETE (CE505)				
		**********				
		< CONNECTOR >				
* CN701	1-568-836-11	SOCKET, CONNECTOR 17P				
		< DIODE >				
D731	8-719-303-02	DIODE SEL2510C-D (MUSIC CLIP A)				
D732	8-719-303-02	DIODE SEL2510C-D (MUSIC CLIP B)				
D733	8-719-303-02	DIODE SEL2510C-D (MUSIC CLIP C)				
D734	8-719-303-02	DIODE SEL2510C-D (MUSIC CLIP D)				
		< RESISTOR >				
R701	1-249-415-11	CARBON	680	5%	1/4W	F
R702	1-249-417-11	CARBON	1K	5%	1/4W	F
R703	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R704	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R705	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R706	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R707	1-249-431-11	CARBON	15K	5%	1/4W	
R708	1-249-437-11	CARBON	47K	5%	1/4W	
R709	1-249-415-11	CARBON	680	5%	1/4W	F
R710	1-249-417-11	CARBON	1K	5%	1/4W	F
R711	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R712	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R713	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R714	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R715	1-249-431-11	CARBON	15K	5%	1/4W	
R716	1-249-437-11	CARBON	47K	5%	1/4W	
R717	1-249-415-11	CARBON	680	5%	1/4W	F
R718	1-249-417-11	CARBON	1K	5%	1/4W	F
R719	1-249-415-11	CARBON	680	5%	1/4W	F
R720	1-249-417-11	CARBON	1K	5%	1/4W	F
R721	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R722	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R723	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R724	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R725	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R726	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R727	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R731	1-249-407-11	CARBON	150	5%	1/4W	F
R732	1-249-407-11	CARBON	150	5%	1/4W	F
R733	1-249-407-11	CARBON	150	5%	1/4W	F
R734	1-249-407-11	CARBON	150	5%	1/4W	F
		< VARIABLE RESISTOR >				
RV751	1-223-535-11	RES, VAR, CARBON 1K/1K (PHONE LEVEL)				
		< SWITCH >				
S701	1-554-303-21	SWITCH, TACTILE (8)				
S702	1-554-303-21	SWITCH, TACTILE (9)				
S703	1-554-303-21	SWITCH, TACTILE (10)				
S704	1-554-303-21	SWITCH, TACTILE (>10)				
S705	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)(CE505)				
S706	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)(CE505)				
S707	1-554-303-21	SWITCH, TACTILE (1)				
S708	1-554-303-21	SWITCH, TACTILE (FILE)				
S709	1-554-303-21	SWITCH, TACTILE (ERASE)				
S710	1-554-303-21	SWITCH, TACTILE (CONTINUE)				
S711	1-554-303-21	SWITCH, TACTILE (SHUFFLE)				
S712	1-554-303-21	SWITCH, TACTILE (PROGRAM)				
S713	1-554-303-21	SWITCH, TACTILE (CHECK)				
S714	1-554-303-21	SWITCH, TACTILE (CLEAR)				
S715	1-554-303-21	SWITCH, TACTILE (REPEAT)				
S716	1-554-303-21	SWITCH, TACTILE (DISC 5)				
S717	1-554-303-21	SWITCH, TACTILE (DISC 4)				
S718	1-554-303-21	SWITCH, TACTILE (DISC 3)				
S719	1-554-303-21	SWITCH, TACTILE (TIME)				
S720	1-554-303-21	SWITCH, TACTILE (DISC 1)				
S721	1-554-303-21	SWITCH, TACTILE (DISC 2)				
S722	1-554-303-21	SWITCH, TACTILE (7)				
S723	1-554-303-21	SWITCH, TACTILE (6)				
S724	1-554-303-21	SWITCH, TACTILE (5)				
S725	1-554-303-21	SWITCH, TACTILE (4)				

10 KEY BD

Ref. No.	Part No.	Description			Remark
S726	1-554-303-21	SWITCH, TACTILE (3)			
S727	1-554-303-21	SWITCH, TACTILE (2)			
S728	1-554-303-21	SWITCH, TACTILE (MUSIC CLIP A)			
S729	1-554-303-21	SWITCH, TACTILE (MUSIC CLIP B)			
S730	1-554-303-21	SWITCH, TACTILE (MUSIC CLIP C)			
S731	1-554-303-21	SWITCH, TACTILE (MUSIC CLIP D)			
S751	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)			

****

	A-4673-509-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-346-11	CERAMIC CHIP	1uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-126-607-11	ELECT CHIP	47uF	20%	4V
C117	1-126-209-11	ELECT	100uF	20%	4V
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C119	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C140	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C153	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C156	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C157	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-770-072-11	CONNECTOR, FFC 23P			
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-369-78	IC CXD2545Q			
IC102	8-759-176-09	IC BA6392FP			

Ref. No.	Part No.	Description			Remark
IC103	8-752-072-45	IC CXA1821M-T6			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-91	METAL GLAZE	100	5%	1/10W
R112	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R125	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R126	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R127	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-295-91	CONDUCTOR, CHIP(2012)			
R136	1-216-295-91	CONDUCTOR, CHIP(2012)			
R137	1-216-295-91	CONDUCTOR, CHIP(2012)			
R138	1-216-295-91	CONDUCTOR, CHIP(2012)			
R141	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R142	1-216-081-00	METAL CHIP	22K	5%	1/10W
R143	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R144	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-003-11	METAL GLAZE	12	5%	1/10W
R158	1-216-111-91	METAL GLAZE	390K	5%	1/10W
R159	1-216-101-00	METAL CHIP	150K	5%	1/10W
R160	1-216-295-91	CONDUCTOR, CHIP(2012)			
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			

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Ref. No.	Part No.	Description				Remark
*	A-4673-812-A	DISPLAY BOARD, COMPLETE (CE505)				
		**********				
*	A-4673-956-A	DISPLAY BOARD, COMPLETE (C450Z)				
		**********				
		< CAPACITOR >				
C801	1-161-494-00	CERAMIC	0.022uF			25V
		< CONNECTOR >				
CN801	1-764-411-11	PIN, CONNECTOR (PC BOARD) 35P				
		< FLUORESCENT INDICATOR >				
FL801	1-517-504-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC801	8-759-339-53	IC GP1U28XB				
		< RESISTOR >				
R801	1-249-415-11	CARBON	680	5%	1/4W	F
R802	1-249-417-11	CARBON	1K	5%	1/4W	F
R803	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R804	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R805	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R806	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R807	1-249-431-11	CARBON	15K	5%	1/4W	
R808	1-247-871-11	CARBON	47K	5%	1/4W	
R809	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R810	1-249-431-11	CARBON	15K	5%	1/4W	(CE505)
		< SWITCH >				
S801	1-554-303-21	SWITCH, TACTILE (DISC SKIP)				
S802	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)				
S803	1-554-303-21	SWITCH, TACTILE (■)				
S804	1-554-303-21	SWITCH, TACTILE (❚❚)				
S805	1-554-303-21	SWITCH, TACTILE (▷)				
S806	1-554-303-21	SWITCH, TACTILE (▷▷❙, AMS)				
S807	1-554-303-21	SWITCH, TACTILE (❙◁◁, AMS)				
S808	1-554-303-21	SWITCH, TACTILE (◀◀)				
S809	1-554-303-21	SWITCH, TACTILE (▶▶)				
S810	1-554-303-21	SWITCH, TACTILE (EX-CHANGE)				
S811	1-554-303-21	SWITCH, TACTILE (DISC CHECK)(CE505)				

****

Ref. No.	Part No.	Description				Remark
*	1-659-159-11	HP BOARD				
		********				
		< CAPACITOR >				
C771	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C772	1-162-294-31	CERAMIC	0.001uF	10%	50V	
		< CONNECTOR >				
* CN771	1-568-941-11	PIN, CONNECTOR 3P				
		< JACK >				
J771	1-568-519-41	JACK, LARGE TYPE (PHONES)				
		< RESISTOR >				
R771	1-249-401-11	CARBON	47	5%	1/4W	F
R772	1-249-401-11	CARBON	47	5%	1/4W	F

****

*	1-659-738-11	LOADING BOARD				
		**********				
		< MOTOR >				
M802	A-4660-914-A	MOTOR ASSY, LOADING (LOADING)				

****

*	A-4673-813-A	MAIN BOARD, COMPLETE(CE505:US,CND)				
		**********				
*	A-4673-815-A	MAIN BOARD, COMPLETE(CE505:AEP,G,AUS,CH)				
		**********				
*	A-4673-816-A	MAIN BOARD, COMPLETE(CE505:E)				
		**********				
*	A-4673-957-A	MAIN BOARD, COMPLETE(C450Z)				
		**********				
*	4-922-525-01	HEAT SINK				
	7-685-871-01	SCREW +BVTT 3X6 (S)				
		< CAPACITOR >				
C201	1-104-664-11	ELECT	47uF	20%	16V	
C202	1-104-664-11	ELECT	47uF	20%	16V	
C203	1-136-165-00	FILM	0.1uF	5%	50V	
C204	1-136-165-00	FILM	0.1uF	5%	50V	
C301	1-162-199-31	CERAMIC	10PF	5%	50V	
C302	1-162-199-31	CERAMIC	10PF	5%	50V	
C303	1-161-494-00	CERAMIC	0.022uF		25V	
C304	1-126-177-11	ELECT	100uF	20%	10V	
C305	1-124-443-00	ELECT	100uF	20%	10V	
C306	1-161-494-00	CERAMIC	0.022uF		25V	

MAIN

Ref. No.	Part No.	Description			Remark
C307	1-161-494-00	CERAMIC	0.022uF		25V
C311	1-161-494-00	CERAMIC	0.022uF		25V
C312	1-161-494-00	CERAMIC	0.022uF		25V
C313	1-161-494-00	CERAMIC	0.022uF		25V
C314	1-161-494-00	CERAMIC	0.022uF		25V
C315	1-161-494-00	CERAMIC	0.022uF		25V
C316	1-161-494-00	CERAMIC	0.022uF		25V
C317	1-161-494-00	CERAMIC	0.022uF		25V
C318	1-161-494-00	CERAMIC	0.022uF		25V
C319	1-164-159-11	CERAMIC	0.1uF		50V
C320	1-104-664-11	ELECT	47uF	20%	16V
C321	1-104-905-11	CAPACITOR	0.22F		5.5V
C322	1-161-494-00	CERAMIC	0.022uF		25V
C323	1-161-494-00	CERAMIC	0.022uF		25V
C351	1-161-494-00	CERAMIC	0.022uF		25V
C353	1-124-589-11	ELECT	47uF	20%	16V
C354	1-161-494-00	CERAMIC	0.022uF		25V
C361	1-162-306-11	CERAMIC	0.01uF	30%	16V
C371	1-161-494-00	CERAMIC	0.022uF		25V
C372	1-161-494-00	CERAMIC	0.022uF		25V
C373	1-161-494-00	CERAMIC	0.022uF		25V
C374	1-104-664-11	ELECT	47uF	20%	16V
C375	1-161-494-00	CERAMIC	0.022uF		25V
C381	1-161-494-00	CERAMIC	0.022uF		25V (CE505)
C401	1-162-282-31	CERAMIC	100PF	10%	50V
C402	1-162-215-31	CERAMIC	47PF	5%	50V
C403	1-162-215-31	CERAMIC	47PF	5%	50V
C404	1-130-479-00	MYLAR	0.0047uF	5%	50V
C404	1-137-368-11	FILM	0.0047uF	5%	50V
C405	1-130-472-00	MYLAR	0.0012uF	5%	50V
C405	1-137-433-11	FILM	0.0012uF	5%	50V
C406	1-124-443-00	ELECT	100uF	20%	10V
C407	1-161-494-00	CERAMIC	0.022uF		25V
C408	1-124-589-11	ELECT	47uF	20%	16V
C409	1-161-494-00	CERAMIC	0.022uF		25V
C410	1-161-494-00	CERAMIC	0.022uF		25V
C411	1-104-664-11	ELECT	47uF	20%	16V
C412	1-162-290-31	CERAMIC	470PF	10%	50V
C501	1-162-282-31	CERAMIC	100PF	10%	50V
C502	1-162-215-31	CERAMIC	47PF	5%	50V
C503	1-162-215-31	CERAMIC	47PF	5%	50V
C504	1-130-479-00	MYLAR	0.0047uF	5%	50V
C504	1-137-368-11	FILM	0.0047uF	5%	50V
C505	1-130-472-00	MYLAR	0.0012uF	5%	50V
C505	1-137-433-11	FILM	0.0012uF	5%	50V
C506	1-124-443-00	ELECT	100uF	20%	10V
C507	1-161-494-00	CERAMIC	0.022uF		25V
C508	1-124-589-11	ELECT	47uF	20%	16V
C509	1-161-494-00	CERAMIC	0.022uF		25V
C510	1-161-494-00	CERAMIC	0.022uF		25V
C511	1-104-664-11	ELECT	47uF	20%	16V
C512	1-162-290-31	CERAMIC	470PF	10%	50V
C601	1-126-944-11	ELECT	3300uF	20%	16V
C602	1-126-942-61	ELECT	1000uF	20%	16V
C603	1-126-963-11	ELECT	4.7uF	20%	50V
C604	1-126-963-11	ELECT	4.7uF	20%	50V
C605	1-126-963-11	ELECT	4.7uF	20%	50V
C606	1-126-941-11	ELECT	470uF	20%	6.3V
C607	1-104-666-11	ELECT	220uF	20%	10V
C611	1-124-918-11	ELECT	47uF	20%	63V
C612	1-124-907-11	ELECT	10uF	20%	50V
C621	1-104-665-11	ELECT	100uF	20%	16V
C622	1-161-494-00	CERAMIC	0.022uF		25V
C651	1-161-494-00	CERAMIC	0.022uF		25V
		< CONNECTOR >			
CN351	1-750-640-11	CONNECTOR, FFC/FPC 23P			
CN352	1-764-411-11	PIN, CONNECTOR (PC BOARD) 35P			
CN361	1-568-860-11	SOCKET, CONNECTOR 17P			
* CN371	1-568-825-11	SOCKET, CONNECTOR 6P			
* CN601	1-573-047-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D321	8-719-987-63	DIODE 1N4148M			
D381	8-719-987-63	DIODE 1N4148M (CE505)			
D401	8-719-987-63	DIODE 1N4148M			
D402	8-719-987-63	DIODE 1N4148M			
D501	8-719-987-63	DIODE 1N4148M			
D502	8-719-987-63	DIODE 1N4148M			
D601	8-719-200-82	DIODE 11ES2			
D602	8-719-200-82	DIODE 11ES2			
D603	8-719-200-82	DIODE 11ES2			
D604	8-719-200-82	DIODE 11ES2			
D611	8-719-200-82	DIODE 11ES2			
D612	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D621	8-719-987-63	DIODE 1N4148M			
D622	8-719-010-34	DIODE UZ-4.7BSC			
		< IC >			
IC201	8-759-821-32	IC CXA1291P			
IC301	8-759-362-47	IC CXD8567AM			
IC302	8-752-871-31	IC CXP82224-042Q			
IC303	8-759-397-04	IC LC3564SM-85			
IC371	8-749-921-12	IC GP1F32T (OPTICAL DIGITAL OUT)			
IC401	8-759-634-51	IC M5218AP			
IC402	8-759-634-51	IC M5218AP			
IC501	8-759-634-51	IC M5218AP			
IC601	8-759-061-65	IC LA5602			
IC602	8-749-011-78	IC BA17807T			
IC611	8-759-633-42	IC M5293L			

Ref. No.	Part No.	Description	Remark
		< JACK >	
J381	1-774-726-11	JACK (SMALL TYPE)(S-LINK CONTROL A1)(CE505)	
J401	1-770-719-11	JACK, PIN 2P (VARIABLE LINE OUT)	
		< COIL >	
L301	1-410-503-11	INDUCTOR 3.3uH	
L302	1-410-503-11	INDUCTOR 3.3uH	
L303	1-412-473-21	INDUCTOR 0uH	
L304	1-410-503-11	INDUCTOR 3.3uH	
L305	1-410-503-11	INDUCTOR 3.3uH	
L306	1-412-473-21	INDUCTOR 0uH	
L307	1-412-473-21	INDUCTOR 0uH	
L308	1-412-473-21	INDUCTOR 0uH	
L351	1-410-503-11	INDUCTOR 3.3uH	
L361	1-412-473-21	INDUCTOR 0uH	
L401	1-410-503-11	INDUCTOR 3.3uH	
L501	1-410-503-11	INDUCTOR 3.3uH	
		< TRANSISTOR >	
Q311	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q361	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q362	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q363	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q364	8-729-029-67	TRANSISTOR DTC114ESA-TP	
Q371	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q381	8-729-119-78	TRANSISTOR 2SC2785-HFE (CE505)	
Q401	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q402	8-729-029-56	TRANSISTOR DTA144ESA-TP	
Q501	8-729-141-26	TRANSISTOR 2SC3622A-LK	
Q502	8-729-029-56	TRANSISTOR DTA144ESA-TP	
Q611	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	

Ref. No.	Part No.	Description				Remark
R201	1-249-440-11	CARBON	82K	5%	1/4W	
R202	1-249-440-11	CARBON	82K	5%	1/4W	
R203	1-249-441-11	CARBON	100K	5%	1/4W	
R204	1-249-441-11	CARBON	100K	5%	1/4W	
R205	1-249-393-11	CARBON	10	5%	1/4W	F
R206	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R207	1-247-889-00	CARBON	270K	5%	1/4W	
R208	1-247-889-00	CARBON	270K	5%	1/4W	
R209	1-247-860-11	CARBON	16K	5%	1/4W	
R210	1-247-883-00	CARBON	150K	5%	1/4W	
R211	1-249-431-11	CARBON	15K	5%	1/4W	
R212	1-249-382-11	CARBON	1.2	5%	1/6W	F
R213	1-249-382-11	CARBON	1.2	5%	1/6W	F
R214	1-249-393-11	CARBON	10	5%	1/4W	F
⚠R215	1-212-942-00	FUSIBLE	2.2	5%	1/2W	F
⚠R216	1-212-942-00	FUSIBLE	2.2	5%	1/2W	F
R301	1-249-424-11	CARBON	3.9K	5%	1/4W	F
R302	1-249-417-11	CARBON	1K	5%	1/4W	F
R303	1-249-417-11	CARBON	1K	5%	1/4W	F
R304	1-249-417-11	CARBON	1K	5%	1/4W	F
R305	1-249-411-11	CARBON	330	5%	1/4W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-249-429-11	CARBON	10K	5%	1/4W	
R308	1-247-807-31	CARBON	100	5%	1/4W	
R311	1-249-429-11	CARBON	10K	5%	1/4W	
R312	1-249-429-11	CARBON	10K	5%	1/4W	
R313	1-249-429-11	CARBON	10K	5%	1/4W	
R314	1-249-441-11	CARBON	100K	5%	1/4W	
R315	1-249-429-11	CARBON	10K	5%	1/4W	
R316	1-249-429-11	CARBON	10K	5%	1/4W	
R321	1-249-399-11	CARBON	33	5%	1/4W	F
R322	1-249-429-11	CARBON	10K	5%	1/4W	
R323	1-249-429-11	CARBON	10K	5%	1/4W	
R324	1-249-429-11	CARBON	10K	5%	1/4W	
R325	1-249-429-11	CARBON	10K	5%	1/4W	
R326	1-249-429-11	CARBON	10K	5%	1/4W	
R327	1-249-429-11	CARBON	10K	5%	1/4W	
R328	1-249-429-11	CARBON	10K	5%	1/4W	
R329	1-249-429-11	CARBON	10K	5%	1/4W	
R330	1-249-429-11	CARBON	10K	5%	1/4W	
R331	1-249-429-11	CARBON	10K	5%	1/4W	
R332	1-249-429-11	CARBON	10K	5%	1/4W	
R333	1-249-429-11	CARBON	10K	5%	1/4W	
R334	1-249-417-11	CARBON	1K	5%	1/4W	F
R335	1-249-429-11	CARBON	10K	5%	1/4W	
R351	1-249-429-11	CARBON	10K	5%	1/4W	
R352	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R361	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R362	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R363	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R364	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R371	1-249-429-11	CARBON	10K	5%	1/4W	
R372	1-249-430-11	CARBON	12K	5%	1/4W	
R373	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R374	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R375	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R381	1-249-425-11	CARBON	4.7K	5%	1/4W	F (CE505)
R382	1-249-429-11	CARBON	10K	5%	1/4W	(CE505)
R383	1-249-393-11	CARBON	10	5%	1/4W	F (CE505)
R401	1-249-436-11	CARBON	39K	5%	1/4W	
R402	1-249-436-11	CARBON	39K	5%	1/4W	
R403	1-249-431-11	CARBON	15K	5%	1/4W	
R404	1-249-431-11	CARBON	15K	5%	1/4W	
R405	1-249-437-11	CARBON	47K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ne les remplacer que par une piéce portant le numéro spécifié.

MAIN | **SENSOR** | **TABLE MOTOR**

Ref. No.	Part No.	Description				Remark
R406	1-249-437-11	CARBON	47K	5%	1/4W	
R407	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R408	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R409	1-247-887-00	CARBON	220K	5%	1/4W	
R410	1-249-417-11	CARBON	1K	5%	1/4W	F
R411	1-249-409-11	CARBON	220	5%	1/4W	F
R412	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R413	1-247-807-31	CARBON	100	5%	1/4W	
R414	1-249-441-11	CARBON	100K	5%	1/4W	
R501	1-249-436-11	CARBON	39K	5%	1/4W	
R502	1-249-436-11	CARBON	39K	5%	1/4W	
R503	1-249-431-11	CARBON	15K	5%	1/4W	
R504	1-249-431-11	CARBON	15K	5%	1/4W	
R505	1-249-437-11	CARBON	47K	5%	1/4W	
R506	1-249-437-11	CARBON	47K	5%	1/4W	
R507	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R508	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R509	1-247-887-00	CARBON	220K	5%	1/4W	
R510	1-249-417-11	CARBON	1K	5%	1/4W	F
R511	1-249-409-11	CARBON	220	5%	1/4W	F
R512	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R513	1-247-807-31	CARBON	100	5%	1/4W	
R514	1-249-441-11	CARBON	100K	5%	1/4W	
R601	1-249-429-11	CARBON	10K	5%	1/4W	
R602	1-249-429-11	CARBON	10K	5%	1/4W	
R603	1-249-438-11	CARBON	56K	5%	1/4W	
R611	1-249-435-11	CARBON	33K	5%	1/4W	
R621	1-249-411-11	CARBON	330	5%	1/4W	
		< SWITCH >				
⚠S601	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (CE505:E)				
		< VIBRATOR >				
X301	1-579-834-11	VIBRATOR, CRYSTAL (33MHz)				
X311	1-579-175-11	VIBRATOR, CERAMIC (10MHz)				
**********						
*	1-659-737-11	SENSOR BOARD **********				
		< CONNECTOR >				
CN851	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P				
CN852	1-750-243-11	SOCKET, CONNECTOR 6P				
		< DIODE >				
D851	8-749-924-18	DIODE PHOTO INTERRUPTER RPI-1391				
D852	8-749-924-30	DIODE PHOTO REFLECTOR GP2S28				

Ref. No.	Part No.	Description				Remark
		< RESISTOR >				
R851	1-249-416-11	CARBON	820	5%	1/4W	F
R852	1-249-406-11	CARBON	120	5%	1/4W	F
**********						
*	1-647-364-11	TABLE MOTOR BOARD **********				
		< MOTOR >				
M801	A-4660-525-A	MOTOR ASSY, ROTARY (TABLE)				
**********						
		MISCELLANEOUS **********				
13	1-776-239-11	WIRE (FLAT TYPE)(17 CORE)				
15	1-776-125-11	WIRE (FLAT TYPE)(35 CORE)				
⚠68	1-569-007-11	ADAPTER, CONVERSION 2P (CE505:E)				
⚠68	1-569-008-11	ADAPTER, CONVERSION 2P (CE505:CH)				
72	1-751-052-11	WIRE (FLAT TYPE)(6 CORE)				
105	1-466-996-11	ENCODER, ROTARY				
109	1-765-443-11	WIRE (FLAT TYPE)(23 CORE)				
111	1-452-538-41	MAGNET				
⚠151	8-848-367-11	OPTICAL PICK UP KSS-213B/K-N				
152	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)				
⚠CNP901	1-558-943-61	CORD, POWER (CE505:E)				
⚠CNP901	1-575-651-21	CORD, POWER (CE505:AEP,G,CH)				
⚠CNP901	1-590-926-11	CORD, POWER (C450Z/CE505:US,CND)				
⚠CNP901	1-696-845-11	CORD, POWER (CE505:AUS)				
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)				
M102	X-4917-504-1	MOTOR ASSY (SLED)				
M801	A-4660-525-A	MOTOR ASSY, ROTARY (TABLE)				
M802	A-4660-914-A	MOTOR ASSY, LOADING (LOADING)				
S101	1-572-085-11	SWITCH, LEAF (LIMIT)				
⚠T601	1-423-830-11	TRANSFORMER, POWER (C450Z/CE505:US,CND)				
⚠T601	1-429-394-11	TRANSFORMER, POWER (CE505:AEP,G,AUS,CH)				
⚠T601	1-429-395-11	TRANSFORMER, POWER (CE505:E)				
**********						

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Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-531-11	REMOTE COMMANDER (RM-DC51)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	1-777-241-11	CORD, CONNECTION (CONTROL A1 1m)	(CE505:CND)
	3-810-585-11	MANUAL,INSTRUCTION (ENGLISH,FRENCH,SPANISH,SWEDISH,CHINESE)	(CE505:CND,AEP,G,E,CH)
	3-810-585-21	MANUAL, INSTRUCTION (ENGLISH)	(C450Z/CE505:US,AUS)
	3-810-585-31	MANUAL, INSTRUCTION (GERMAN,DUTCH,PORTUGUESE,ITALIAN)	(CE505:AEP,G)
*	4-979-552-01	CUSHION (FRONT)	
*	4-979-553-01	CUSHION (REAR)	
*	4-979-555-01	INDIVIDUAL CARTON (CE505:US,CND,AEP,G,AUS)	
*	4-981-353-01	INDIVIDUAL CARTON (CE505:E,CH)	
*	4-981-605-01	INDIVIDUAL CARTON (C450Z)	
	4-983-956-01	COVER, BATTERY (For RM-DC51)	

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****
HARDWARE LIST
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#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-682-548-04	SCREW +BVTT 3X8 (S)	
#3	7-685-648-79	SCREW (M3X12), TAPPING	
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#5	7-621-772-00	SCREW +B 2X3	
#6	7-685-134-19	SCREW +PTPWH 2.6X8 (TYPE2)	
#7	7-621-255-15	SCREW +P 2X3	
#8	7-685-871-01	SCREW +BVTT 3X6 (S)	

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